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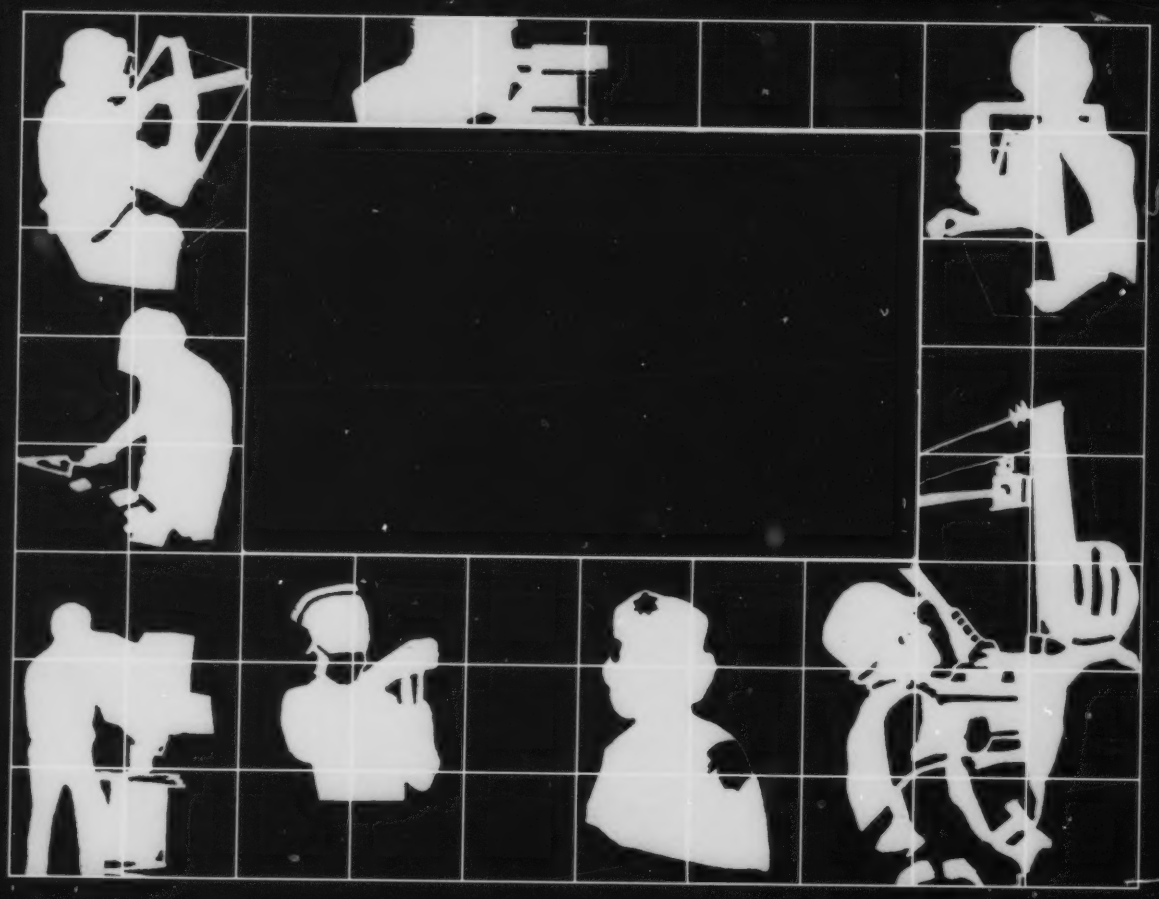

Canada

AN ANALYSIS OF THE DEMAND FOR AND SUPPLY OF NURSING PERSONNEL IN CANADA

Prepared by: Occupational Studies and Program Linkage Unit
Canadian Occupational Projection System
Employment and Immigration Canada

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We have tried through this report to capture the core components and challenges of today's complex, dynamic Canadian labour market for nurses. The input and support provided by the many agencies and individuals involved have made this goal more attainable.

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EXECUTIVE SUMMARY

The labour market for nurses* is in many ways unlike that for other occupations. Partially a consequence of such factors as proportionally high female representation, government regulation of practice and the nature and environment of patient care, traditional methods of labour market analysis do not wholly capture the demand and supply mechanisms relevant to today's Canadian market for nursing services. What's more, the characteristics of this labour market are subject to rapid and constant revision. This increases the importance of market specific insight to any discussion or analysis of potential paths of labour market development.

This report examines the current functional nature and potential development path of Canada's labour market for nurses. Items of coverage include the general environment of current nursing practice, the challenges and consequences of individual labour market pressures for both the demand and supply of nurses, and, by extension, the degree of labour market balance in evidence today and as forecast for the next few years. At issue is not only the quantitative nature of nurse demand and supply, but also the qualitative specifics of skill requirements and availability.

The labour market for nurses in Canada is extremely dynamic. Although certain parameters of practice remain unchanged, important job characteristics and functions are constantly being revised, thus altering the mechanisms and the process of labour market adjustment. Major factors include technological change, expanding bounds of nursing knowledge, a general ageing of the Canadian population, changing expectations regarding the nurse's role in health care delivery, revised employer hiring preferences, and changing patterns of health care delivery. The primary impact of most of these influences is on the demand for nurses. However, pressures

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* Throughout this paper, the term nurse is used only with reference to individuals eligible for employment as a graduate or registered nurse. Unless otherwise noted, nursing assistants, practical nurses, practical assistants, nursing aides and nursing orderlies are excluded from the analysis.

exerted on the environment and skill requirements of practicing nursing personnel have a significant impact on both supply mechanisms, and the ability of the nurse labour market to adjust in times of perceived labour market imbalance. Unfortunately, the impact of individual influences is quite often contrary, increasing labour demand while diminishing labour supply.

In recent years the demand for nurses in Canada has increased rapidly. This pattern should continue, supported by an employer hiring shift to favour nurses, recent initiatives to expand the role of nurses in health care delivery, and a rapidly growing elderly population. Pressures which could potentially decrease the demand for nurses represent either a planning unknown (such as future patterns of health care delivery), or have increased demand in the past (such as technological change).

Market pressures are not altering just the overall magnitude of nurse demand, however. Expanding nursing knowledge and continuously evolving tools and techniques of health care delivery have led to increased practice specialization and enhanced skill needs for practicing nursing personnel. Hence, the qualitative nature of nurse requirements has expanded as well.

These trends have significant implications for the supply of nurses and the flexibility of the nursing labour market. The expanded scope of nursing knowledge has, in effect, increased the education investment required by nursing students, thereby decreasing supply by prolonging the preparation time required prior to market entry. This also lengthens the adjustment time required to respond to perceived labour market imbalances. The same is true of the increasing prevalence of specialty nursing practice. Although an appropriate means of delivering high quality patient care in an era of vast and rapidly evolving technical knowledge, the trend toward practice specialization also removes some labour market flexibility by increasing the heterogeneity of nursing personnel.

The supply of nurses is influenced by the size of the nurse training source population, individual willingness to enter the nursing profession,

the ability of non-practicing personnel to re-enter active practice, the time investment required by nursing students in formal study, and the immigration of nurses into Canada. Unfortunately, the continuation of supply patterns in evidence today could lead each of these influences to eventually contribute to availability declines, by diminishing the number of persons entering or re-entering professional practice.

The potential seems to exist, however, for labour market changes which could increase the availability of nursing services through more effective utilization of existing human resources. Current standard characteristics of the nursing labour force are high attrition and turnover, intermittent periods of labour market involvement and a high incidence of part-time employment. If work environment revisions could be instituted to lessen the supply reducing impact of any of these forces, overall nurse supply could rise, even in the absence of increased education activity.

A declining flexibility of the nurse labour market suggests an expanded role for human resource planning activities. By anticipating the future, planners may be able to institute changes which will decrease the potential for long-term labour market imbalance. Whether avoiding surplus or shortage, resource allocation can be optimized and, as feasible, adequate human resource availability ensured. This is particularly crucial given the occupation specific nature of nursing education and current concerns regarding nurse supply shortages.

It is generally agreed that there was a shortage of nurses in Canada in 1981. Current media attention suggests that this problem is recurring, a contention supported by recent statistics. Although today's shortage does not seem to be as severe as that at the beginning of the decade, current patterns of labour market development suggest that today's Canadian nursing shortage will persist, if not worsen, at least in the short-term.

INTRODUCTION

A convincing body of research and analysis has accumulated supporting the viewpoint that the labour market for health manpower is significantly different from that for other broad occupational groupings. Traditional methods of supply and demand analysis are not appropriate. This is due in part to government regulation of health practice, a reliance on public financing, and the nature and environment of patient care[1]. It has been further suggested that the market for nursing personnel is different from that for other health care occupations[2].

The purpose of this paper is to present an overview and analysis of the Canadian labour market for nurses*. The scope of discussion is confined to the major factors influencing the demand for nursing services, and the supply of nursing personnel in Canada.

With this in mind, the following is divided into four sections. The first briefly discusses the structure and functional environment of Canadian nursing practice, including legislative control, professional organization, and the role of the nurse in providing health care services. Section two examines major labour market mechanisms and structural relationships and considers the potential impact of currently identifiable patterns of change. The third section presents current and projected measures of the demand for nursing services and the supply of nursing personnel, highlighting methodological shortcomings as appropriate. The fourth section summarizes briefly the overlying implications of the issues and trends which have been discussed and their potential impact on the agencies, organizations and individuals involved with the Canadian labour market for nurses.

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* Throughout this paper, the term nurse is used only with reference to individuals eligible for employment as a graduate or registered nurse. Unless otherwise noted, nursing assistants, practical nurses, practical assistants, nursing aides and nursing orderlies are excluded from the analysis.

I. THE STRUCTURE OF NURSING IN CANADA

Canadian nurses are members of a highly regulated, highly organized and highly skilled professional group. A full appreciation of the factors affecting the demand for nursing services and the availability of nursing personnel requires a basic knowledge of the environment within which nurses function. Important factors include government legislation and control of practice, education requirements and availability, professional organization, the role and function of the nurse, and traditional labour market patterns. Readers familiar with the structural environment of Canadian nursing practice may wish to pass over the background information provided in this section.

1.1 Legislation

The British North America Act of 1867 granted primary responsibility for the provision of health services to the provincial governments*, a jurisdictional arrangement which exists to this day. Although the federal government has imposed some standards, the reality of ten separate functional health care jurisdictions has fostered the development of ten distinct, albeit related, Canadian health care systems[4].

With specific reference to the regulation of nursing practice, provincial/territorial statutes can differ in both coverage and degree of control, although the Yukon is the only jurisdiction in which some form of direct nursing legislation does not exist. Most provinces require that nursing candidates be licensed by that jurisdiction's nursing regulatory body (as established by an Act of the Provincial Parliament/Legislature), prior to obtaining employment as a nurse.

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* Federal involvement was limited to quarantine, the establishment and maintenance of marine hospitals, jurisdiction over food and drug quality, and responsibility for veterans, the military, the Royal Canadian Mounted Police, Indians, penitentiary inmates, and passengers arriving from foreign lands. The federal government also provides health services in the Northwest Territories and the Yukon, and helps finance health services.[3]

Ontario, Manitoba, Saskatchewan and British Columbia (almost 60 percent of Canadian nurses live/work in these provinces) have provisions for voluntary certification, wherein certification signifies a state endorsement of competence but grants no exclusive right to practice*[5]. In these jurisdictions non-registered personnel may legally perform the duties of a nurse, although certification may be demanded by employers as a pre-condition of practice and may be required by provincial statute in some employment locations. Whether the form of practice control be licensure (mandatory registration) or certification (voluntary or permissive registration) the initial requirements placed upon individual candidates are essentially the same throughout Canada. In all provinces the regulatory agency is charged with disciplining membership and maintaining standards of practice.

Provincial regulations often delineate the scope of nursing practice. There is no standardized definition of the specifics of the nursing function, however. Statutory designations vary among the provinces, and may differ from the standard suggested by the national professional nursing association.

In most provinces psychiatric nursing is a branch of standard nursing practice, regulated by general nursing legislation and requiring basic educational preparation compatible with other branches of professional operation. In British Columbia, Alberta, Saskatchewan and Manitoba, however, psychiatric nursing is a separate occupation, distinguished by its own legislation, registering agencies and programs of basic education (although nurses in these provinces may be registered with both their provincial nurses association and that for psychiatric nurses).

The fundamental provincial differences in degree of nursing licensure and scope of the nursing role have a significance beyond that of professional regulation. The major source of statistical information regarding Canadian

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* The term certification is used as herein defined. This process is distinct from that of certifying competence in a specialty area of nursing practice, discussed in a later section of this report.

nurses is that provided by nurses themselves during the annual registration process. Although timely and comprehensive, this data must be used with some caution. Since registration is not mandatory in some provinces the actual number of nurses available to practice in these jurisdictions will be under-estimated. Moreover, the designation of psychiatric nursing as a separate occupation in the western provinces, thereby excluding these practitioners from the general nursing registry, causes significant inter-provincial coverage inconsistencies.

1.2 Education

The provision of education services is a provincial jurisdiction. As a consequence interprovincial variations exist regarding nurse instruction locations, availability and standards. National generalizations regarding basic education requirements and supplementary instruction opportunities are none-the-less appropriate.

Entry to nursing practice requires formal professional preparation at the post-secondary level. Two types of basic nursing credentials can be received. A diploma in nursing, available from a community college, hospital school of nursing or independent school of nursing (this latter in New Brunswick and Prince Edward Island only[6]), requires two to three years of full-time study. Alternatively, four to five years of study are required for graduation from a university Baccalaureate of Nursing program. Each program of instruction relies on clinical experience in hospitals or community services to supplement classroom instruction[7].

It is important to note that not all forms of nurse schooling are available in each province, and that hospital based education is either being phased out, or has already been discontinued, in most jurisdictions[8]. Table 1.1 provides the number of programs of basic nursing instruction available within each province/territory by program and facility type. In-province

university education is not available to Prince Edward Island residents. Basic education facilities do not exist within the Yukon or Northwest Territories.

Table 1.1

NUMBER OF SCHOOLS OF NURSING BY LEVEL AND TYPE OF PROGRAM, CANADA AND THE PROVINCES, 1986

Province	Diploma		Basic Baccalaureate Degree
	Community College	Hospital/ Independent	
Newfoundland	--	4	1
Prince Edward Island	--	1	--
Nova Scotia	--	7	2
New Brunswick	--	5	2
Quebec	42	--	3
Ontario	23	--	8
Manitoba	1	5	1
Saskatchewan	2	--	1
Alberta	7	4	2
British Columbia	9	1	1
Northwest Territories	--	--	--
Yukon	--	--	--
Canada	84	27	21

-- Not applicable.

Source: Statistics Canada, Health Care Section, Health Division, Catalogue. No. 83-226, 'Nursing in Canada', Ottawa, Ontario.

Education options are not limited to basic programs. Advanced and continuing nursing instruction is considered an increasingly important prerequisite for effective health care delivery. Major categories of supplemental schooling include programs through which experienced nurses originally educated at the diploma level may earn a baccalaureate degree; short-term programs designed to impart proficiency in a specialized area of nursing practice; refresher courses to upgrade the skills of non-participants prior to labour market re-entry; and masters level programs. Canada does not currently have facilities for instruction in nursing science at the doctoral level.

The availability of both programs and specialties of instruction varies from province to province and institution to institution. The options for individual nurse participation are limited by local availability. Distance education* is becoming an increasingly important means of accommodating both a rising demand for continuing education and the high proportion of nurses for whom classroom participation is not a viable option.

1.3 The Canadian Nurses Association

The provincial focus of nursing legislation is approximately reflected in the profession's own internal organizational structure. The Canadian Nurses Association (CNA) is a federation of nine provincial and two territorial nurses associations. CNA membership is limited exclusively to registered nurses belonging to member provincial/territorial associations.

The objectives of the CNA are to represent Canadian nurses at the national and international level, to develop a national perspective on nursing and health related policy issues, to promote high standards of nursing practice, education, administration and research and to provide leadership on issues related to the working lives of nurses. Examples of CNA initiatives include a national bilingual professional journal, the development and administration of a national examination for registration, the implementation of a national program for certification in nursing specialties, and representation of Canadian nurses where Federal policies potentially affect nursing practice.

In 1970[9] the CNA established a National Testing Service to prepare a comprehensive pre-registration test for use by provincial associations in determining the suitability of candidates for registration. This test is currently used in each province[10], although individual regulatory agencies set their own pass standards. The nation-wide use of this single skills

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* Distance education, as a general term, is used to encompass a variety of non-traditional methods of instruction wherein participating students need not be physically present at the sponsoring institution throughout the learning period.

assessment tool can minimize the impact of inter-provincial education discrepancies. This achievement is noteworthy, since inconsistencies in basic registration requirements can prohibit professional geographic mobility, thereby diminishing the equilibrating effect of an important labour market mechanism. Indeed, Canadian nurses have exhibited a high propensity to migrate, the magnitude of which will be discussed in a later section.

The professional association of first and primary contact for most registered nurses is their provincial/territorial regulatory agency. In most provinces (Ontario and Quebec are the sole exceptions) this regulatory agency is also the CNA provincial/territorial associate. Aside from their statutory responsibilities, provincial/territorial nurse associations and regulatory agencies provide input on behalf of the nursing profession to governments and other organizations, communicate with members, present an informal voice to effect change, and generally promote the best interests of their membership within the provincial milieu[11].

In most provinces these bodies initially assumed the additional responsibility of representing their membership in the collective bargaining process. This function was eventually relinquished by many in favour of establishing a separate provincial nurses' union[12]. In most jurisdictions collective bargaining is conducted on a province-wide basis, bringing provincial standardization to hospital salary scales.

The CNA, its provincial associate members, nurse regulatory agencies and provincial nurses unions are not the only agencies of professional organization. Voluntary nursing associations abound, the most common focus of membership being interest in a specific branch of specialty nursing practice.

1.4 Role of the Nurse

Most nurses are today, as in the past, employed in direct patient care. To varying degrees, depending upon the practice setting, this may involve assessing, monitoring and recording patient condition, assisting medical

practitioners, operating or monitoring medical equipment, or coordinating and supervising the activities of allied nursing personnel[13]. Increasingly, registered nurses are also involved in nursing and health care administration, education, and nursing science research.

Although the patient care focus of nursing practice has remained constant, significant changes have occurred in recent years in the scope and specifics of the nursing care function. These changes include revisions to the role of nursing professionals in the decision making process, the relationship between nurses and other health professionals, and the tools, techniques and setting of nursing care delivery. The expanding role and complexity of nursing practice is perhaps most accurately chronicled by changes which have occurred, and are continuing to take place, in nursing education.

Catalysts to change include advances in medical knowledge (which have increased both the range of physical ailments which can be effectively treated and the number and complexity of tools required for optimal care delivery), revised employer preferences in hiring, and changing expectations regarding the scope of the nursing function. The specific nature of these forces has important implications for the level and nature of nursing demand, and will be discussed at some length in that section of this report. Recent changes in health care techniques, however, have had a tremendous impact on the nursing environment, especially within the hospital setting. The overall effect is pervasive, and therefore an essential background element to nursing demand and supply determination.

As a consequence of increasingly effective health care fewer people are dying prematurely. This has altered the illness patterns to which nurses must respond and the demographic composition of the patient population. Whereas in the past most patients suffered from infectious diseases, implying episodic intervention and the objective of cure, today's nursing personnel are more often faced with chronic illness and the degenerative ailments of old age. The model has switched from one of patient cure to patient care, wherein the 'family as well as the individual, is the client'.[14]

The impact on the parameters of care delivery have been hospitalization of patients for shorter periods of time (increasing the rate of patient turnover), during only the most acute stages of illness. More intense and sophisticated levels of nursing care are required during the entire period of hospitalization[15], with little or no convalescence done in the hospital[16].

The direct consequence for nurses themselves is an increasing physical workload, more complex techniques of health care delivery, and a rising level of job related stress. The problem is often compounded by budgetary constraint and a subsequent non-availability of increased human resources to meet any new demand for nursing services.

As the tools and techniques of health care delivery have expanded so too has the scope of nursing knowledge. This has fostered both an increased need for continuing education to update obsolete nurse schooling and a growing importance of nursing specialties and specialists. The growth of specialty functions has not been limited to nursing personnel, but has extended beyond to create new health care occupations, expanding the members of the hospital health care team. These changes can cause role conflict and confusion, creating the need for a re-evaluation of the role of the nurse in patient care[17].

1.5 General Labour Market Background

Nurses are primarily employed in hospitals, although in most jurisdictions this proportion has declined marginally in recent years. Relative employment increases have taken place in nursing homes/homes for the aged and community health centres. Other practice settings include physician's offices, educational institutions, industry and the patients' home. As the place of employment changes, so too do the conditions of practice, the level of educational preparation required, and the opportunities for growth within the employing agency.

With the exception of the depression years[18], the labour market for nurses has exhibited a cyclical pattern of surplus and shortage. Reasons behind this include the reactive use of education quotas to remedy situations of

labour market imbalance[19] and budgetary restraint, often leading to bed closures and subsequent employment reductions. Estimates of the average length of this cycle range anywhere from six[20] to ten[21] years. A number of recent studies, prepared on the basis of data collected during the late 1970's and early 1980's, concluded that the region considered was then experiencing a shortage of nursing personnel. Many projected that this condition would become chronic if certain labour market changes were not instituted. These conclusions, however, will be best considered following a discussion of the specific factors affecting the demand for nurses in Canada and the availability of nursing personnel.

II. FACTORS INFLUENCING THE DEMAND FOR AND SUPPLY OF NURSES IN CANADA

A summary, quantitative analysis of the nature of Canadian nursing practice is not straightforward and therefore should be viewed with some caution. Inter-provincial differences in nursing legislation, education and work environment suggest a labour market for which national averages may misrepresent individual provincial patterns. What's more, the provincial focus of most data collection activities and labour market studies, and the rapidity with which changes are occurring, make it difficult to construct a current, nationally representative outline of labour market structure.

With these limitations in mind the following is a summary analysis of the important demand and supply mechanisms through which today's labour market for Canadian nurses functions. Where possible provincial patterns have been identified, especially where these diverge from the national trend.

2.1 Demand for Nurses

The realized demand for nursing services is the result of a complex interaction of many diverse factors. Among these are the changing role and function of the nurse, an increasing need for specialized nursing services, employer preferences in hiring, fiscal restraint and its impact upon funds for wages and health care facilities, the availability of allied health professionals, the method of health care delivery and the age distribution of the general population. The following considers the role these factors play in influencing both the magnitude of nurse demand and the range and form of nurse skill requirements.

2.1.1 General Patterns of Nurse Demand and Employment

In 1986, 204,579*[22] registered nurses were employed in nursing in Canada. Of this number fully 93 percent were involved in direct patient care. The remainder were primarily employed in administration (4 percent) and education (3 percent).

The level of nurse employment in 1986 was 32 percent above that for 1980. Data collection considerations suggest that some reported employment increases may in fact stem from increased registration activity or improved data capture. The general employment increase across all occupations in Canada was just below 9 percent over this same six year period, a level significantly below that for nurses alone. The demand for nursing services has also exhibited strong relative growth in recent years. Between 1979/80 and 1984/85, the paid hours of work for graduate nurses employed in Canada's public hospitals rose 21 percent. By way of comparison, 1985 estimates of the actual annual hours of work for the Canadian labour force as a whole were approximately 4 percent above those for 1980[23]. Using either measure suggests strong, above average demand growth for nurses in Canada.

2.1.2 Industry of Employment and Changing Health Care Delivery Techniques

Table 2.1 details the changes which have occurred since 1979 in the location of nursing employment. Overall, shifts have been marginal. Whereas the importance of hospital employment has declined somewhat, that of nursing homes/homes for the aged has risen. The overall impact has been to leave the proportion of nurses employed in health care institutions (hospitals plus nursing homes/homes for the aged) virtually unchanged, approximating 81 percent of the total in recent years. Over the longer term the proportion of registered nurses employed in an institutional setting has decreased marginally.

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* This data series is based upon self-reported information provided by nurses during the annual registration process. As a consequence it reflects all limitations inherent in that system of data collection (see pages 3 and 4 for discussion).

Table 2.1

REGISTERED NURSES EMPLOYED IN NURSING SHOWING PERCENT DISTRIBUTION[1] BY PLACE OF EMPLOYMENT, CANADA[2], 1979 TO 1986

Year	Total	Hospital	Nursing Home/Home for the Aged	Community Health	Physician's Office	Educational Institution	Other
	(#)	(%)	(%)	(%)	(%)	(%)	(%)
1979	148,827	75.6	5.9	9.2	2.8	3.2	3.3
1980	155,178	75.3	6.4	9.1	2.9	3.1	3.4
1981	161,070	75.3	6.1	9.4	2.7	3.0	3.5
1982	164,086	76.1	5.2	9.5	2.6	2.9	3.6
1983	176,623	75.3	6.4	9.4	2.6	2.8	3.5
1984[3]	187,918	75.2	6.7	9.5	2.6	2.8	3.3
1985	194,361	74.7	6.7	9.5	2.7	2.8	3.7
1986	204,579	74.5	6.9	9.6	2.6	2.7	3.7

Note: These data are based on self-reported information provided to Statistics Canada by provincial nursing associations, as collected by these bodies from individual nurses during the first four months of the annual registration process. Total coverage cannot be claimed since not all provinces have mandatory registration legislation.

1. These distributions are based only upon the information provided by survey respondents who specifically identified their place of employment. Persons who did not answer this question have been excluded from the total used in calculation.
2. Excludes the Yukon.
3. Data from the Association of Registered Nurses of Newfoundland were not available in 1984. 1983 data were repeated to calculate the 1984 Canada total.

Source: Statistics Canada, Health Division, Health Manpower Statistics Section, Revised Registered Nurses Data Series (1979 to 1985) and Registered Nurses Management Data (1986), Ottawa, Ontario.

These data suggest that a current trend away from institutional methods of health care delivery has not significantly diminished the importance of this source of nursing employment. Part of the reason for this may be the changing nature of institutional patient care, discussed earlier. As the acuity of patients within hospitals increases so too must the intensity of nursing care, and therefore the per patient day demand for nursing services. The average number of paid nursing hours per patient day in Canada's public hospitals rose from approximately 3.6 in 1977/78 to almost 4.1 in 1984/85[24].

Continuing budgetary restraint, an emphasis on health maintenance and self-care, and a search for non-institutional forms of health care delivery may yet precipitate a declining relative importance of institutional nursing employment. As Appendix Table A2 shows, the period since 1980 has been one of strong employment growth for nurses in each of the industries considered. This pattern should not change. However, the relative importance of individual agencies to overall nursing employment will continue to evolve. The health care delivery patterns and techniques that will emerge, and their impact on nursing practice, employment patterns, and total demand levels are unclear.

This does not diminish, however, the importance of this issue in influencing future levels of nurse utilization and patterns of nursing skill requirements. Each method of health care delivery employs a unique mix of health professionals and requires differing practice skills.

Considering Canadian averages alone masks important and diverse employment patterns which may exist within individual jurisdictions. Unfortunately, data inconsistencies prohibit direct provincial comparisons of the importance of various industries to total nurse employment.

2.1.3 Technological Change

Perhaps the most serious current and continuing challenge to face nursing personnel is technological change. Although the ultimate extent and specific impact of technological innovation cannot now be precisely identified, it is certain that medical knowledge will continue to expand and that the tools and methods of health diagnosis and treatment will become more varied, more complex and more demanding. Identified potential challenges to nursing practice include: a continued expansion of the boundaries of nursing science, strengthening the move to nursing specialties; continued turnover in the tools and techniques of care delivery, challenging the adaptive and analytical capabilities of practicing personnel; and an increasing emphasis on more advanced basic education.

Whether these factors will increase or decrease the overall demand for nursing services is unknown. Whereas technology has generally increased the service intensity of institutional patient care, technological innovation is also shortening the period of hospital morbidity associated with some diseases and medical procedures. The experience of the late 1970's in Ontario was that technological innovation increased the overall demand for nursing services[25].

As do so many trends influencing the demand for nurses, the pace of technological change has important ramifications for the supply of nurse human resources. The nurse labour force is characterized by intermittent periods of labour market attachment on the part of individual practitioners. Voluntary periods of short-term labour market absence may become permanent where the changing demands of nursing employment leave the non-practicing nurse ill-equipped to resume professional practice. Indeed, it has been suggested that developments in 'technology and treatment are now so rapid that nurses need refresher training after as little as six months away from the job'[26].

2.1.4 Employment by Level of Educational Preparation

In 1986, 88[27] percent of Canadian registered nurses whose highest level of education was a nursing diploma were employed in nursing*. By comparison 90 percent of nurses holding baccalaureate credentials were so employed. This general difference is marginal, suggesting that no significant employment advantage exists for holders of a baccalaureate degree. However, the employment success of recent graduates of basic nurse education programs suggests that employers are beginning to favour the university educated nurse.

A survey of 1982 community college (including hospital) and university graduates found that two years after graduation, among those who had entered the labour force, 2 percent of nurse degree recipients and 5 percent of nurse diploma recipients remained unemployed[28]. In addition to higher general employment, degree holders reported somewhat more success than their college/hospital educated colleagues in attaining work in fields specifically requiring a nursing background. Indeed, the data suggests that position of employment is increasingly becoming a function of individual nursing credentials.

Table 2.2 compares the position of employment held by 1976 and 1982 nursing graduates two years after graduation, by program type. In general the proportion of baccalaureate recipients holding supervisory and teaching positions outranks that among diploma recipients in each year. Between 1976 and 1982 the actual number of persons who had entered these positions from diploma programs fell, while the number entering from baccalaureate programs generally rose. The single exception is entrants to the medicine and health administration occupations, wherein both diploma and baccaulaurate flows fell. Compensating increases were reported among graduates of Masters of Nursing Science programs. In each year considered the proportion of new program graduates employed in direct patient care was highest among diploma recipients.

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* Includes direct patient care, nursing administration, nursing science research and teaching nursing skills.

Table 2.2

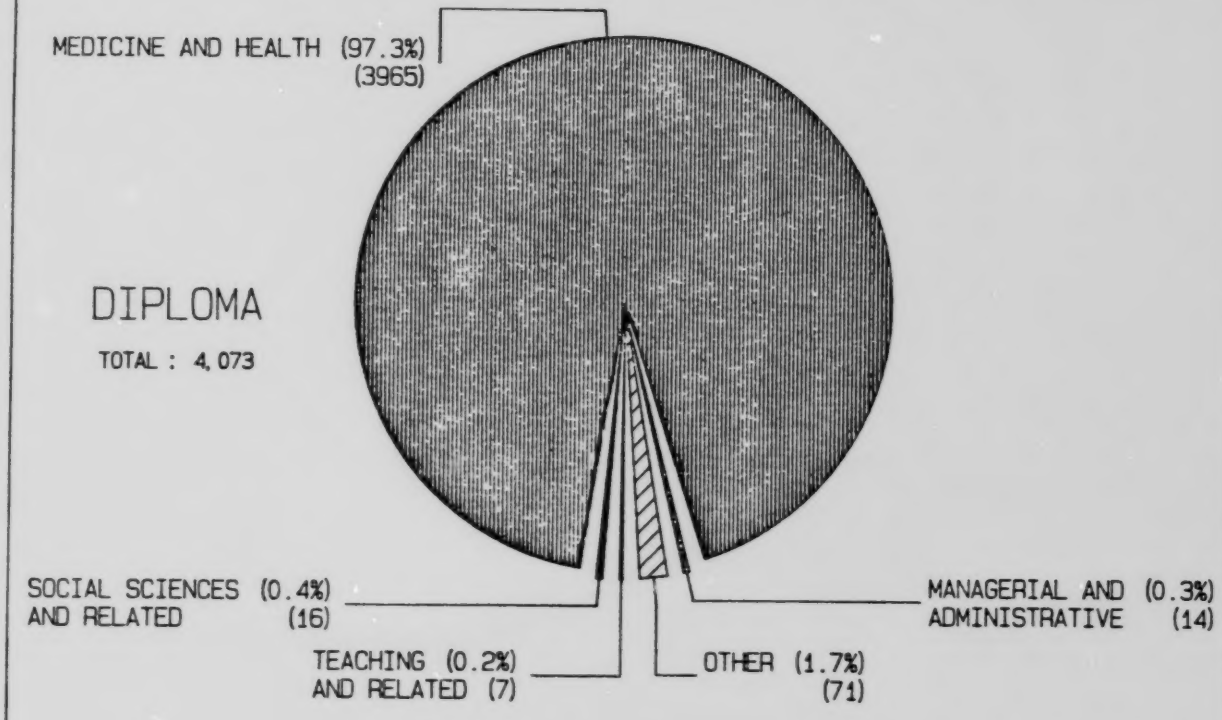
EMPLOYED GRADUATES OF BASIC PROGRAMS OF NURSING INSTRUCTION
TWO YEARS AFTER GRADUATION BY PROGRAM TYPE SHOWING NUMERIC AND
PERCENT DISTRIBUTION BY OCCUPATION OF EMPLOYMENT, CANADA[1], 1976 AND 1982 GRADUATES

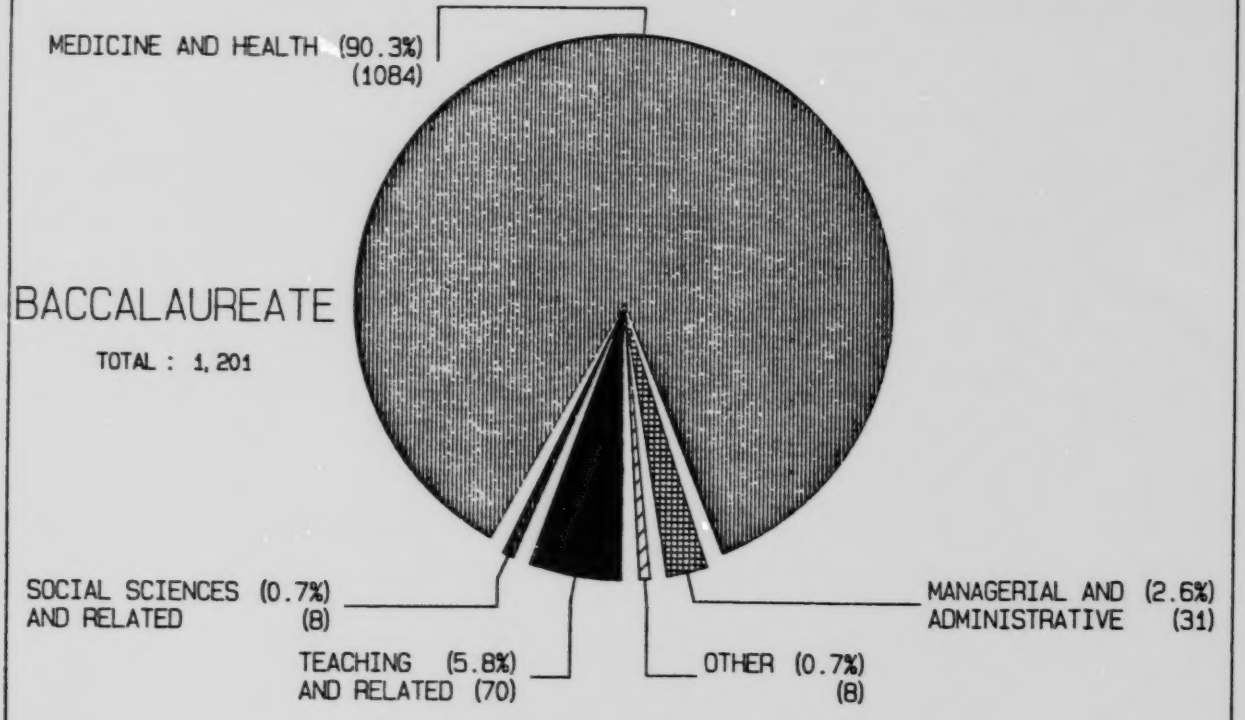
Occupation and Year	Diploma		Baccalaureate	
	#	%	#	%
1976 Graduates				
Managerial, Administrative and Related	43	1.3	31	3.2
Social Sciences and Related	5	0.2	0	0.0
Medicine and Health	29	0.9	29	3.0
Other	9	0.3	2	0.2
Social Sciences and Related	9	0.3	0	0.0
Social Workers	0	0.0	0	0.0
Other	9	0.3	0	0.0
Teaching and Related	14	0.4	63	6.6
Medicine and Health	3,033	93.8	841	88.2
Nursing Supervisors	48	1.5	21	2.2
Nurses - Non-Supervisors	2,895	89.6	812	85.1
Other	90	2.8	8	0.8
Other	133	4.1	19	2.0
Total	3,232	100.0	954	100.0
1982 Graduates				
Managerial, Administrative and Related	14	0.3	31	2.6
Social Sciences and Related	0	0.0	0	0.0
Medicine and Health	8	0.2	14	1.2
Other	6	0.1	17	1.4
Social Sciences and Related	16	0.4	8	0.7
Social Workers	14	0.3	3	0.2
Other	2	--	5	0.4
Teaching and Related	7	0.2	70	5.8
Medicine and Health	3,965	97.3	1,084	90.3
Nursing Supervisors	18	0.4	44	3.7
Nurses - Non-Supervisors	3,686	90.5	1,009	84.0
Other	261	6.4	31	2.6
Other	71	1.7	8	0.7
Total	4,073	100.0	1,201	100.0

1. Quebec post-secondary institutions were not involved in the 1978 (1976 graduates) version of this survey. For comparison purposes, data for that province has been removed from the 1984 (1982 graduates) Canada totals.

Source: C.O.P.S. - Data from the National Graduate Survey.

EMPLOYED GRADUATES OF BASIC PROGRAMS OF NURSING INSTRUCTION TWO YEARS AFTER GRADUATION BY PROGRAM TYPE SHOWING PERCENT DISTRIBUTION BY OCCUPATION OF EMPLOYMENT, CANADA*, 1982 GRADUATES


MEDICINE AND HEALTH (97.3%) (3965)
DIPLOMA
TOTAL : 4,073
SOCIAL SCIENCES AND RELATED (0.4%) (16)
MANAGERIAL AND ADMINISTRATIVE (0.3%) (14)
TEACHING AND RELATED (0.2%) (7)
OTHER (1.7%) (71)


MEDICINE AND HEALTH (90.3%) (1084)
BACCALAUREATE
TOTAL : 1,201
SOCIAL SCIENCES AND RELATED (0.7%) (8)
MANAGERIAL AND ADMINISTRATIVE (2.6%) (31)
TEACHING AND RELATED (5.8%) (70)
OTHER (0.7%) (8)

* EXCLUDES QUEBEC

STATS. CANADA

Table 2.3 compares the position of employment held by all nurses in 1980 and 1986 showing highest level of education in nursing. This data illustrates the long term occupational impact of the vocational hiring differences considered above. Nurses whose highest level of education in nursing is at the diploma level are over represented only among general duty nurses. Conversely, baccalaureate and higher degree recipients are over represented among the holders of more advanced nursing positions. This difference is more marked in 1986.

Although very little information is available regarding the education qualification preferences of the employers of registered nurses, the findings of a 1980 survey by the Alberta Hospital Association point to the hiring practices underlying the distributions in Tables 2.2 and 2.3. Only 1 percent of responding hospital and nursing home administrators considered baccalaureate preparation essential to practice in staff nursing positions. This proportion rose progressively as more advanced levels of nursing employment were discussed. For head nurse positions 34 percent considered baccalaureate preparation necessary, and for employment as a director of nursing, fully 60 percent of respondents indicated baccalaureate or higher nursing instruction as an essential level of formal preparation[29]. This does not say whether these same employers would prefer to hire personnel holding more advanced nursing qualifications, nor whether persons not meeting the desired standards would be considered if more appropriate candidates could not be found.

The demand pattern described here could have a significant effect on the supply of nurses. As potential entrants to programs of basic nurse instruction perceive discrepancies in the employment success of graduates of the various nursing programs, they will respond by favouring those offering the most positive long term gains and career potential. Indeed, current patterns point to high relative growth in baccalaureate level student participation and a rising demand for post-basic instruction opportunities.

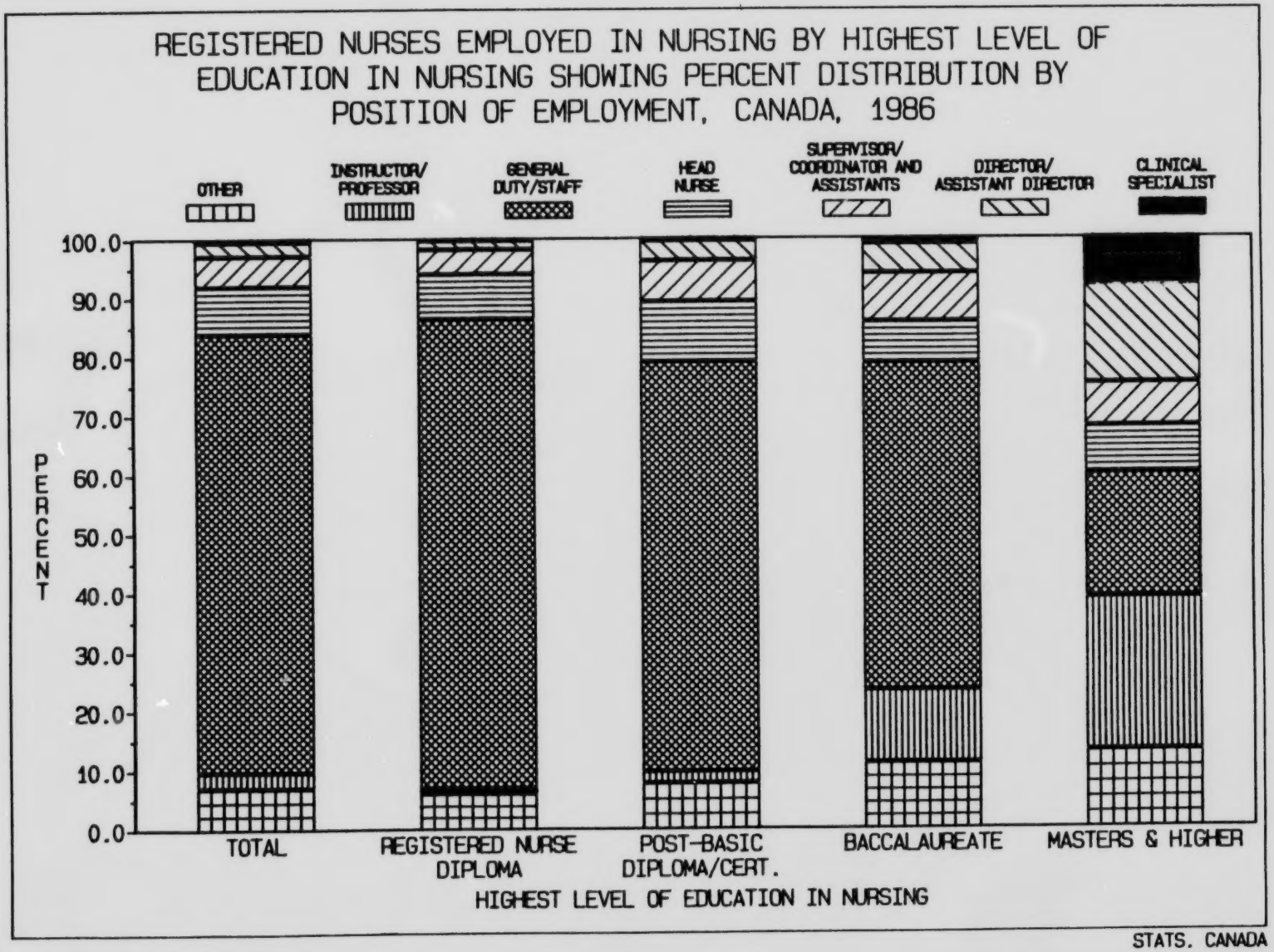
Table 2.3

REGISTERED NURSES EMPLOYED IN NURSING BY HIGHEST LEVEL OF EDUCATION IN NURSING, SHOWING NUMERIC AND PERCENT DISTRIBUTION BY POSITION OF EMPLOYMENT, CANADA[1], 1980 AND 1986

Position and Year	Total[2]		Registered Nurse Diploma		Post-Basic Diploma/ Certificate		Baccalaureate		Masters and Higher	
	#	%	#	%	#	%	#	%	#	%
1980										
Total[2]	144,978	100.0	96,832	100.0	33,131	100.0	14,040	100.0	975	100.0
Director, Assistant Director	3,728	2.6	1,882	1.9	955	2.9	731	5.2	160	16.4
Supervisor/Coordinator, Assistant Supervisor/ Coordinator	7,513	5.2	4,474	4.6	1,803	5.4	1,164	8.3	72	7.4
Clinical Specialist	2,518	1.7	1,865	1.9	436	1.3	167	1.2	50	5.1
Head Nurse	15,625	10.8	11,197	11.6	3,318	10.0	1,070	7.6	40	4.1
General Duty/Staff	101,622	70.1	70,070	72.4	23,943	72.3	7,477	53.3	132	13.5
Instructor/Professor	4,305	3.0	1,047	1.1	637	1.9	2,215	15.8	406	41.6
Other	9,667	6.7	6,297	6.5	2,039	6.2	1,216	8.7	115	11.8
1986										
Total[2]	197,795	100.0	135,881	100.0	36,613	100.0	23,521	100.0	1,780	100.0
Director, Assistant Director	4,764	2.4	2,065	1.5	1,235	3.4	1,167	5.0	297	16.7
Supervisor/Coordinator, Assistant Supervisor/ Coordinator	10,374	5.2	5,716	4.2	2,566	7.0	1,962	8.3	130	7.3
Clinical Specialist	1,181	0.6	565	0.4	208	0.6	261	1.1	147	8.3
Head Nurse	15,964	8.1	10,476	7.7	3,733	10.2	1,616	6.9	139	7.8
General Duty/Staff	146,842	74.2	108,007	79.5	25,411	69.4	13,046	55.5	378	21.2
Instructor/Professor	5,274	2.7	1,190	0.9	725	2.0	2,897	12.3	462	26.0
Other	13,396	6.8	7,862	5.8	2,735	7.5	2,572	10.9	227	12.8

1. Excludes the Yukon.
2. These data are based only upon the information provided by survey respondents who specifically identified their position of employment and highest level of education in nursing. Non-respondents have been excluded from the total.

Source: Statistics Canada, Health Division, Health Manpower Statistics Section, Revised Registered Nurses Data Series (1980) and Registered Nurses Management Data (1986), Ottawa, Ontario.


REGISTERED NURSES EMPLOYED IN NURSING BY HIGHEST LEVEL OF EDUCATION IN NURSING SHOWING PERCENT DISTRIBUTION BY POSITION OF EMPLOYMENT, CANADA, 1986
OTHER
INSTRUCTOR/ PROFESSOR
GENERAL DUTY/STAFF
HEAD NURSE
SUPERVISOR/ COORDINATOR AND ASSISTANTS
DIRECTOR/ ASSISTANT DIRECTOR
CLINICAL SPECIALIST
PERCENT
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
TOTAL
REGISTERED NURSE DIPLOMA
POST-BASIC DIPLOMA/CERT.
BACCALAUREATE
MASTERS & HIGHER
HIGHEST LEVEL OF EDUCATION IN NURSING
STATS. CANADA

In 1982[30], in response to the increasing complexity and demands of nursing and in anticipation of the future practice environment, the CNA Board of Directors unanimously passed a resolution recommending that by the year 2000 the minimum education requirement for entry into the practice of nursing should be successful completion of a baccalaureate degree in nursing. At the present time must provincial CNA associate organizations endorse this directive, although support has not been forthcoming from government legislators and some nurse unions. For this latter group, issues of concern include the status, job security and career potential of currently practicing diploma trained nurses, and the availability of education upgrading opportunities. Provincial governments note the potential cost implications of implementation and cite a lack of evidence to support the need for an exclusively baccalaureate trained nurse labour force (emphasizing both the need for baccalaureate trained nurses in some employment locations and the valuable role played by the staff nurse in health care delivery).

Whether voluntary or legislated, a continuation of the trend towards more advanced levels of basic nurse instruction could have serious implications for nurses, nursing administrators and health care planners. An education extension of from one to three years would decrease the ability of the nursing labour market to adjust in times of perceived labour market imbalance by postponing individual labour market entry.

Information specific to income by level of education is limited to averages for graduates of basic programs two years following their entry into the labour force. In 1984 average annual earnings of full-time employed 1982 graduates of diploma schools of nursing were $24,053, 29 percent above the general college average. Graduates of baccalaureate programs received an average of $27,023 per annum, 14 percent above the mean for university undergraduate programs[31]. Most of this salary differential can be traced to the education linked vocational differences discussed earlier. Considering only those graduates who entered non-surpervisory nursing positions, 1984 salaries for 1982 diploma and degree recipients were $24,299 and $25,900 respectively. This corroborates evidence from various sources suggesting that employers pay only a small wage premium, if any, to nurses holding advanced nursing credentials[32].

2.1.5 Position of Employment and the Changing Functional Nature of Nurse Demand

An increasing proportion of nurses are employed in general duty nursing, while supervisory and teaching positions remain relatively stable (see Table 2.4). Declining relative proportions have generally been limited to clinical specialist and head nurse positions. The reader may note in Appendix Table A4 that the declining relative importance of clinical specialist employment reflects a real decline in the number of nurses so employed. Known reporting inconsistencies for this position type make it difficult to determine the extent to which this decline reflects an actual decrease in such employment opportunities.

The most important changes which are currently taking place to the nursing role and function cannot be measured using the available data. Nonethe-less these changes have very important implications for both the magnitude of nurse demand and the range of nurse skill requirements. Some of these changes were discussed earlier as affecting the functional environment of traditional nursing practice. Further revisions are occurring with respect to employer occupational preferences in hiring, the statutory designation of the boundaries of nursing practice, and degree of practice specialization.

Small pay differentials*, the need for nursing supervision, and requirements for more technically complex nursing care have prompted many hospitals to decrease, even discontinue, employment of nursing assistants (also called practical nurses or practical assistants) in favour of increasing levels of registered nurse employment. In some provinces the continued existence of this category of nursing practice is in question, although submissions made in 1984 to the Manitoba Nursing Review Committee

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* In 1984, Manitoba licensed practical nurse earnings were, on average, 80 percent of those accruing to registered nurses[33], a relative proportion which is only marginally higher than that existing in British Columbia in 1982[34]. A summary examination of starting salary differentials as established by collective agreement suggests that this relationship applies generally across Canada[35].

Table 2.4

REGISTERED NURSES EMPLOYED IN NURSING SHOWING PERCENT DISTRIBUTION[1] BY POSITION OF EMPLOYMENT, CANADA[2], 1979 TO 1986

Year	Total (#)	Director, Assistant Director (%)	Supervisor/ Coordinator, Assistant Supervisor/ Coordinator (%)	Clinical Specialist (%)	Head Nurse (%)	General Duty/Staff (%)	Instructor (%)	Other (%)
1979	148,827	2.6	5.2	1.8	11.4	69.4	3.0	6.6
1980	155,178	2.6	5.2	1.8	11.0	69.8	2.9	6.7
1981	161,070	2.5	5.4	1.3	11.2	71.3	2.8	5.4
1982	164,086	2.5	5.4	1.0	10.5	72.1	2.9	5.7
1983[3]	176,623	2.6	5.3	0.8	10.2	73.3	2.9	4.9
1984[3]	187,918	2.6	5.3	0.6	8.5	73.9	2.8	6.2
1985	194,361	2.5	5.3	0.6	8.8	73.2	2.8	6.7
1986	204,579	2.4	5.2	0.6	8.1	74.2	2.7	6.8

Note: These data are based on self-reported information provided to Statistics Canada by provincial nursing associations, as collected by these bodies from individual nurses during the first four months of the annual registration process. Total coverage cannot be claimed since not all provinces have mandatory registration legislation.

1. These distributions are based only upon the information provided by survey respondents who specifically identified their position of employment. Persons who did not answer this question have been excluded from the total used in calculation.
2. Excludes the Yukon.
3. Data from the Association of Registered Nurses of Newfoundland were not available in 1984. 1983 data were repeated to calculate the 1984 Canada total.

Source: Statistics Canada, Health Division, Health Manpower Statistics Section, Revised Registered Nurses Data Series (1979 to 1985) and Registered Nurses Management Data (1986), Ottawa, Ontario.

suggested that in most instances a nurse/nursing assistant mix was more cost effective than employing nurses only[36].

As Table 2.5 shows, the ratio of graduate nurse hours to those of both nursing assistants and nursing orderlies has risen marginally in recent years in Canadian public hospitals. This phenomenon is a consequence of continually increasing utilization levels for graduate nursing services and recent declines in the number of paid hours for both nursing assistants and nursing orderlies. This pattern is reflected in the total number of persons employed. Public hospitals account for approximately 85 percent of all Canadian hospitals and 96 percent of staffed hospital beds[37]. Employment pattern shifts occurring in these institutions can have strong implications for the nursing labour market as a whole.

Whereas some of this shift may be a response to insufficient numbers of nursing assistants, most of the observed increase in nurse utilization rates represents a change in employer hiring preferences. When asked in 1980 to express their reasons for increasing the number of registered nurse positions relative to those of nursing assistants, many Alberta hospital and nursing home administrators explained that nurses were more economical, and that the demands of patient care required the skills and expertise provided by these health care professionals[38]. In those instances where registered nursing assistant positions had increased relative to those of nurses the prime reason supplied was a shortage of nursing personnel. This suggests that the movement to registered nurse staffing may have been stronger had more such personnel been available.

A related area of change is the movement, proposed and actual, of nurses into clinical functions traditionally reserved for medical practitioners. The structure of the nurse/doctor relationship is being challenged in a number of areas, some of which are discussed below. The precise nature of the future nursing role with respect to that of the medical profession is now unclear. Current debate regarding the appropriate role of both the nurse practitioner and the midwife in health care delivery exemplify the potential scope of this policy issue.

Table 2.5

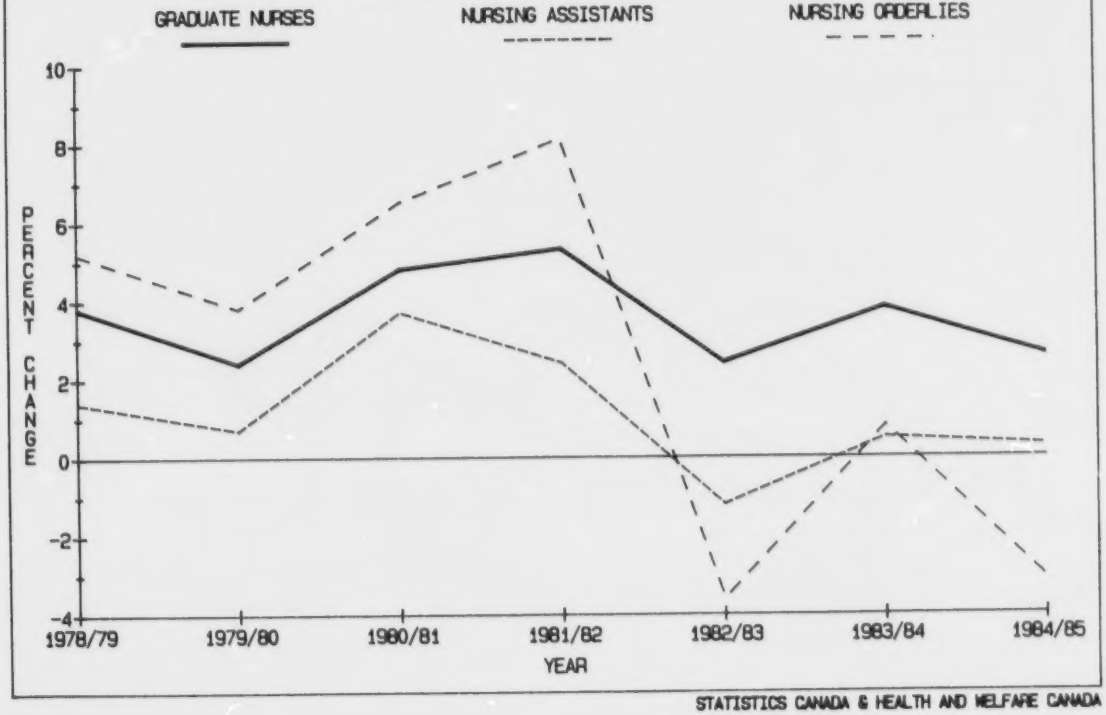
NURSING STAFF EMPLOYED IN PUBLIC HOSPITALS BY NURSING LEVEL SHOWING FULL-TIME, PART-TIME AND TOTAL EMPLOYMENT AT THE END OF THE REFERENCE PERIOD, AND TOTAL ACCUMULATED PAID HOURS DURING THE REFERENCE YEAR, CANADA, 1977/78 TO 1984/85

Position and Employment Measure	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85
Graduate Nurses								
Staff Employed at End of Period								
Full-time	71,104	72,508	73,812	75,314	77,301	78,096	79,305	79,347
Part-time	27,322	29,662	30,781	34,281	38,079	40,083	43,377	46,572
Total	98,426	102,170	104,593	109,595	115,380	118,179	122,682	125,919
Accumulated Paid Hours ('000's)	167,480	169,251	175,034	186,077	192,360	196,187	204,811	211,597
Nursing Assistants								
Staff Employed at End of Period								
Full-time	28,190	27,573	27,820	27,931	27,859	26,587	25,878	25,536
Part-time	9,743	10,895	10,921	12,250	13,284	14,076	14,970	15,416
Total	37,933	38,468	38,741	40,181	41,143	40,663	40,848	40,952
Accumulated Paid Hours ('000's)	65,778	66,075	67,542	70,729	71,001	68,717	68,248	68,561
Nursing Orderlies								
Staff Employed at End of Period								
Full-time	11,939	12,289	12,899	13,593	14,056	13,292	12,900	12,485
Part-time	3,707	4,175	4,191	4,610	5,617	5,680	6,218	6,041
Total	15,646	16,464	17,090	18,203	19,673	18,972	19,118	18,526
Accumulated Paid Hours ('000's)	28,600	29,454	31,779	34,155	35,215	34,262	33,587	33,205
Comparative Measures								
Graduate Nurse Hours per each Nursing Assistant Hour	2.55	2.56	2.59	2.63	2.71	2.86	3.00	3.09
Graduate Nurse Hours per each Nursing Orderly Hour	5.86	5.75	5.51	5.45	5.46	5.73	6.10	6.37

Note: Reference period is from April 1 to March 31.

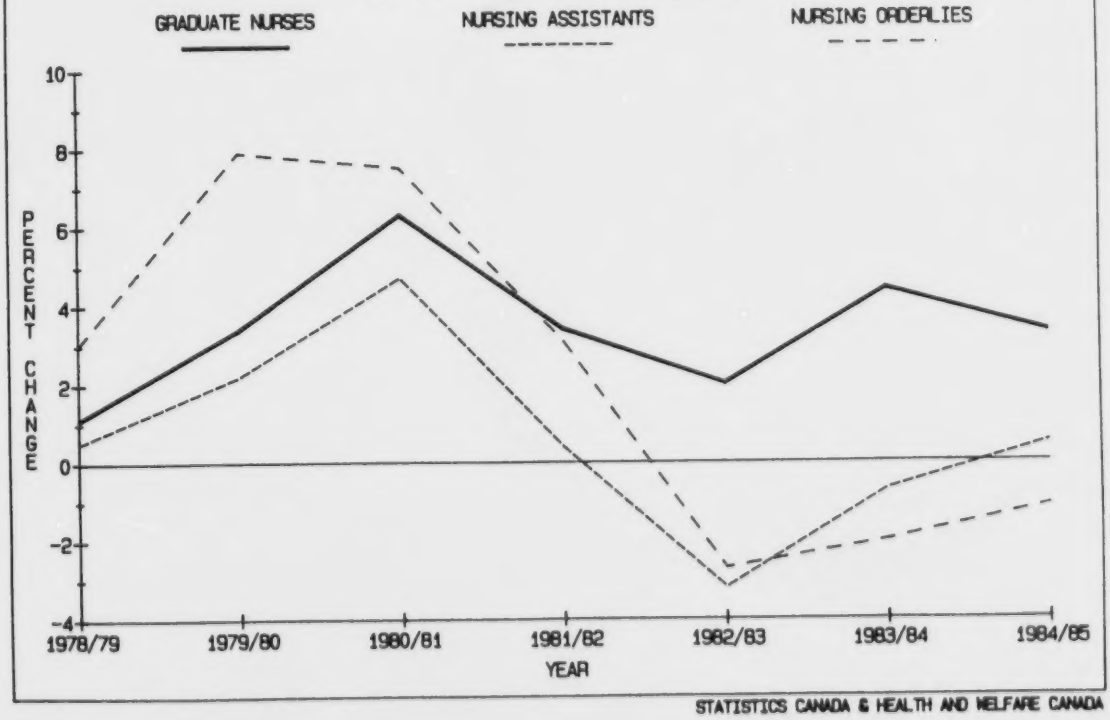
Source: Statistics Canada and Health and Welfare Canada, Annual Return of Health Care Facilities - Hospitals - Part One; unpublished information.

NURSING STAFF EMPLOYED IN PUBLIC HOSPITALS
BY NURSING LEVEL, SHOWING ANNUAL PERCENT CHANGE.
CANADA, 1978/79 TO 1984/85



STATISTICS CANADA & HEALTH AND WELFARE CANADA

NURSING STAFF EMPLOYED IN PUBLIC HOSPITALS BY NURSING LEVEL
SHOWING ANNUAL PERCENT CHANGE IN ACCUMULATED PAID HOURS
CANADA, 1978/79 TO 1984/85



STATISTICS CANADA & HEALTH AND WELFARE CANADA

In April 1972 a report was prepared for the Department of National Health and Welfare recommending that preparation of nurses for an expanded role in primary health care be incorporated into basic nursing education programs[39]. This 'expanded role' would be that now associated with the nurse practitioner, a role proposed to include initial contact with people entering the health care system, assessment of individual health status, and initiation of the treatment process.

At the time of that report's preparation physicians were in short supply throughout Canada, a situation which prompted health officials to consider alternate patterns of human resource utilization and health care delivery. During the decade since, the supply of Canadian physicians has risen dramatically relative to the Canadian population, until there are some concerns today of a physician surplus[40]. This, in conjunction with other legal and practical considerations, has slowed general acceptance of the nurse practitioner. Current attempts to cut the overall costs of Canada's health care delivery system have renewed debate and increased the pressure for more substantive utilization of this health care professional. A number of Canadian studies support the contention that use of nurse practitioners can reduce, perhaps significantly, total health care costs without adversely affecting the quality of care provided.

A general reflection of the potential effectiveness of nurse practitioner deployment is the example set by outpost nursing. Employed in areas where physicians are not continuously available, these professionals provide a wide variety of preventative, diagnostic and treatment services[41], obtaining medical advice as deemed appropriate.

The outcome of current Canadian debate regarding the legalization, role and professional designation of midwives could also initiate a significant departure from traditional methods of health care delivery. Sentiment is strong both in support of and against this proposition. One item of

debate is whether midwifery should be the exclusive reserve of the nursing profession (thereby increasing the demand for nurses) or the function of an independently regulated professional group*.

As the role of the nurse in health care delivery expands, the demand for nursing services must increase accordingly. Current examples of this pattern include increasing levels of registered nurse employment relative to that of allied nursing personnel, and increasing involvement in areas traditionally reserved for the medical profession. The outcome of debate regarding the role and professional status of both the nurse practitioner and midwife could have a significant impact on the overall demand for nurses in Canada, by creating and legitimizing new areas of nursing practice.

In a 1982 policy paper the CNA outlined an approach to developing a system for certification of nurses in nursing specialties, citing the need for recognition of competence over and above basic nursing credentials and the need for quality of care assurance, control, and accountability[42]. Currently, the only certification examination in Canada is in occupational health nursing, although some Canadian nurses have been certified through a United States program[43].

The development of a process of certification in specialties reflects today's trend toward specialty nursing practice. A natural consequence of expanding occupational knowledge and increased technical complexity, the effect of increased practice specialization on the operation of the labour market for nursing personnel may be a decreased ability to effectively align nursing supply and nursing demand by introducing a degree of inflexibility to individual areas of nursing practice. By creating an increasingly heterogenous work force the potential for skills transferability and effective on-the-job training may be diminished.

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* Recently released Ontario and Quebec midwifery task force reports recommend the implementation of this latter alternative, although the individual provincial governments have yet to formalize their position on the issue.

2.1.6 Ageing of the Population

In 1983/84 almost 50 percent of hospital days were consumed by the 10 percent of Canada's population aged 65 and over. This is a marked increase since 1973 when the same age group, then only 8 percent of the population total, utilized 37 percent of hospital days[44]. Although the per capita consumption of hospital patient days fell for all age groups during this ten year period*, the decline was much less pronounced for the population aged 65 years and more (6 percent) than it was for the rest of the population (27 percent). In 1983/84 the average number of hospital days used by each 100,000 elderly persons was 792,270, a rate of hospital utilization approximately eight and one half times higher than the average for the population aged 0 to 64 years.

As Canada's baby boom population ages the proportion of the population aged 65 and over will continue to escalate. Current forecasts suggest that this figure could surpass 12 percent in 1995[45]. Assuming the continued relevance of current patterns of hospital morbidity and the expansion of physical facilities to accommodate rising service needs, this population group will then consume 55 percent of all hospital patient days. In 1979 Statistics Canada estimated that, given then current hospital utilization patterns and forecasts of population growth, by the year 2022 the demand for hospital beds by Canada's population aged 65 and over could, of itself, equal the total available in 1979[46].

As the ageing process advances demands on the health care system, and by extension all categories of health care workers, will rise. The actual magnitude of increase will depend in part on the evolutionary path taken by Canada's health care delivery system and the service intensity demanded by the patient population. Information directly relating hours of nursing care to patient age is not available. Direct conclusions cannot be drawn, therefore, regarding the potential impact of the ageing Canadian population on the demand for nursing services.

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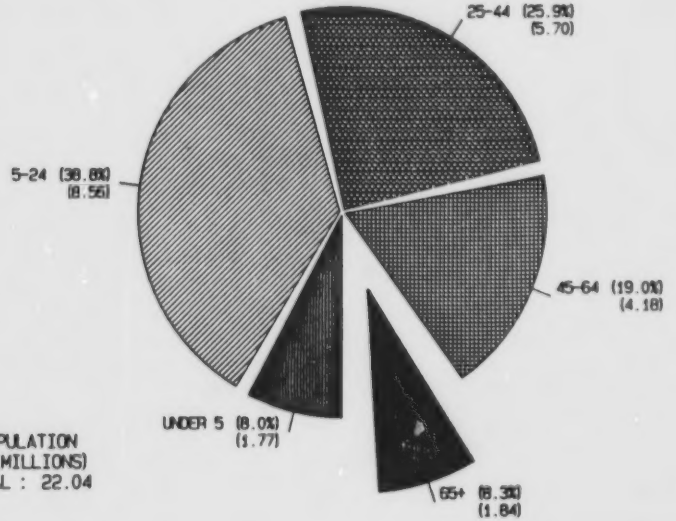
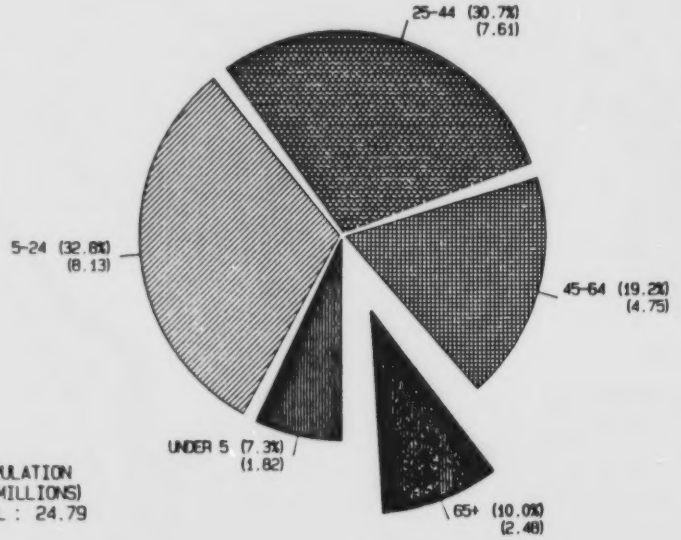
* So much so, in fact, that in 1983/84 total hospital patient days were two percent below the 1973 total.

DISTRIBUTION OF TOTAL POPULATION AND HOSPITAL PATIENT DAYS BY AGE, CANADA, 1973

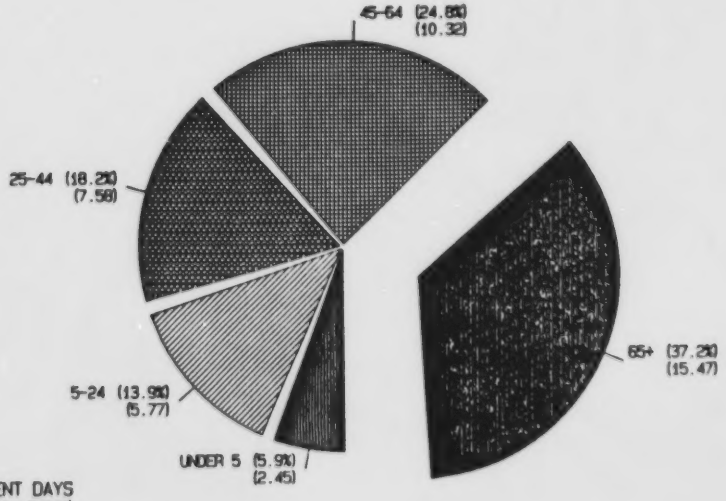


POPULATION (IN MILLIONS) TOTAL : 22.04

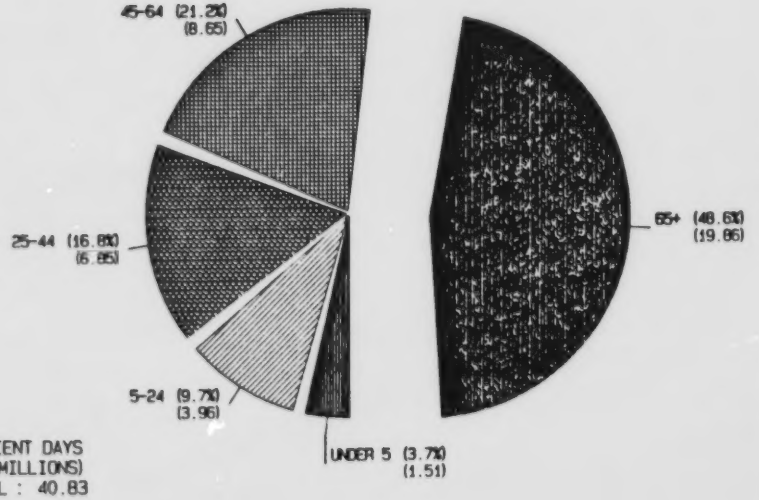
DISTRIBUTION OF TOTAL POPULATION AND HOSPITAL PATIENT DAYS BY AGE, CANADA, 1983-1984



POPULATION (IN MILLIONS) TOTAL : 24.79



PATIENT DAYS (IN MILLIONS) TOTAL : 41.59



PATIENT DAYS (IN MILLIONS) TOTAL : 40.83

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Nursing care demands per patient day are available by hospital unit, however. Since available data[47] and anecdotal evidence suggest an over-representation of patients aged 65 years and more in long-term care hospital units (relative to the all-hospital population distribution), this approach may shed light on the nursing care needs of the elderly patient population. Nursing hours per patient day in long-term care hospital units are significantly lower than the average for all other units. In 1984/85 paid nursing hours per patient day in public hospital long-term care units was 1.16. The average for short-term units was more than three times greater, at 3.61 paid nursing hours per patient day. In that same year the average length of stay in public hospital long-term care units was approximately 184 days, much higher than the short-term unit average of almost nine days. Although nursing service demands in long-term care units are lower on a per patient day basis, they are much higher if aggregated over the entire hospitilization period.

Potential service demand increases generated by an ageing Canadian population present a major challenge for health care planners and administrators. The demand created by the baby boom population is a temporary phenomenon; a potential demographic trap. Physical structures built to accommodate the increase, such as nursing homes, may not be required following this generation's passing[48]. This is a strong argument for developing and implementing alternate, non-institutional forms of health care delivery. Thus, although the ageing of the Canadian population will increase the demand for health care services and occupational practitioners, the impact of delivery alterations, which it must induce, make the qualitative and quantitative nature of these changes difficult to determine. It should be noted that the eldest members of the baby boom population will reach 65 years of age in 2011[49], affording an extended planning horizon to health care authorities.

2.1.7 Cost Considerations in Canadian Health Care

In Canada most financing for the health care system comes from the public purse. Current attempts by federal and provincial governments to contain the growth of overall health care expenditures can influence staffing patterns and levels. Common forms of cost containment include human

resource reductions, new means of service delivery (with decreased emphasis on expensive, institutional forms of care), and utilization of more cost-efficient health care personnel. The latter two of these have been discussed with reference to the potential impact on the demand for nurses.

An example of the strength of the cost containment argument in prompting an examination of alternate forms of health care delivery is New Brunswick's Extra-Mural Hospital. By allowing patients to remain in their own homes the Extra-Mural Hospital's average daily patient costs are $21 (1985), significantly below the $300 average per traditional hospital patient day[50]. Although the severity of illness is not as great as that among patients remaining within the institutional system, patients are being sent home (admitted to the Extra-Mural Hospital) earlier now than when the program began.

Conservative estimates suggest that utilization of the nurse practitioner at levels proven safe and feasible could have potentially reduced Canadian health care costs by between 10 and 15 percent in 1980. Using these estimates implies a minimum cost saving of approximately $300 million[51] on actual 1980 health care costs of $3 billion.

In 1984/85 nursing department salaries and wages represented approximately 45 percent of the salary and wage total for Canadian public hospitals and 30 percent of all hospital expenses[52]. The size of the nursing department relative to all others makes this an attractive target for staff reductions when such are required. The loss of a single nurse year would represent a smaller proportional reduction in overall service capability than would a similar staff cut within a smaller employee group. Hence, when financial constraint forces staffing cutbacks the impact may be felt most sharply in the nursing department[53]. This factor, the importance of hospital employment to overall nurse demand levels, and the important policy component of institutional financing make it difficult for health human resource planners and educators to anticipate future nurse demand levels. Imbalances in the nurse labour market can sometimes be traced to swings in the availability of finances to the health care system.

2.1.8 Summary of Demand

The demand for nursing services is determined by many different factors. The most visible of these have been discussed in the preceding. The consequences of developments in health care techniques, delivery patterns and professional utilization are often diverse, even conflicting - labour market patterns which increase the general demand for nurses may also elicit a contractive supply response.

Technological innovation is perhaps the most important, most pervasive factor influencing today's Canadian market for nurses. By expanding the bounds of nursing knowledge and the range of health care tools and techniques, technological change is creating a demand for more technically competent nurses. This has fostered a move to higher levels of basic formal preparation, restraining supply growth by postponing individual labour market entry; and increased the prevalence of practice specialization, potentially diminishing labour market flexibility by creating a more heterogenous work force.

Other factors important to the demand for nursing personnel include changing patterns of health care delivery, revised nurse utilization patterns relative to allied nursing personnel, current prospective enhancements to the nursing function, fiscal considerations, and an ageing Canadian population. In the most general sense current and anticipated developments in the nature and environment of nursing practice suggest that the strong demand growth of the past five years will persist. The actual magnitude of this growth, however, and the specific range of skills required of practicing nurses are still questionable.

2.2 Supply of Nurses

The sources of nursing supply are entrants from the formal education system, migrants, and skilled personnel who wish to resume active practice following a period of labour market absence. Following a brief, general discussion of the growth and demographic composition of the Canadian nursing labour force each of these flows will be considered.

2.2.1 Occupational Stock and Demographic Profile

In 1986 there were 237,181*[54] nurses registered in Canada, an increase of approximately 16 percent over the 1980 figure. During this six year period Canada's total population grew by 5 percent and the labour force increased by 11 percent.

Today, Canadian nurses are members of the largest health care profession in the country. According to the 1981 Census of Canada, Canada had 197,115 experienced nursing professionals in 1981, fully 97 percent of whom were employed[55]. Other large health care groups were Nursing Attendants (85,660), Nursing Assistants (44,910), and Physicians and Surgeons (40,545).

In 1986 most registered Canadian nurses were 39 years of age or less (57 percent), female (97 percent) and married (72 percent). In general today's nurse population is marginally older on average, has a higher proportion of males and includes more married individuals than did that of

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* This data series is based upon self-reported information provided by nurses during the annual registration process. As a consequence, it reflects all limitations inherent in that system of data collection (see pages 3 and 4 for discussion). It should be noted that, whereas registration is mandatory in most provinces if the registrant wishes to enter nursing practice, this status is not limited to persons seeking nursing employment. All individuals with the appropriate qualifications and passing the registration exam may be registered, although their vocational preference may be teaching nursing students, nursing administration, or an occupation unrelated to the profession. Subsequently, although membership distinguishes those individuals legally entitled to professional practice, it does not delineate those willing to practice.

a decade ago. Although still small in absolute terms, in recent years the number of males choosing a nursing career has expanded at a rate exceeding that of females. Increased participation by married personnel is in part attributable to expanding part-time employment opportunities, allowing larger numbers of nurses to meet the demands of both work and family. Indeed, the propensity for part-time work is greater among married personnel, 43 percent of whom work part-time compared with 17 percent for the rest of the nursing population[56].

By and large the provincial distribution of registered nurses closely approximates that of the Canadian population as a whole. With the exception of the Northwest Territories, where in 1986 there were 227 people to every registered nurse employed in nursing, provincial figures were close to the national average of 124 persons per employed nurse, ranging from a high of 135 in British Columbia to a low of 107 in Nova Scotia[57].

2.2.2 Nursing as a Career Choice

It has often been suggested that the broadened range of occupations available to the working female has caused the rate at which potential entrants choose nursing as a profession to decline. Individuals are less willing to accept week-end and shift rotations, the hard physical work and high stress factor commonly associated with the nursing function[58], leading potential nursing students to choose alternate fields of study. Although an intuitively attractive hypotheses, the available statistical evidence neither supports nor denies the validity of this contention.

The rate at which Canadians aged 18 to 24 are participating in basic nursing programs has risen marginally since 1975, from 9.15 per thousand persons in this age group in that year to 9.84 per thousand in 1986[59]. During the intervening years this rate fell to a low of 7.22 per thousand in 1979 and has exhibited a steady pattern of increase in the years since .

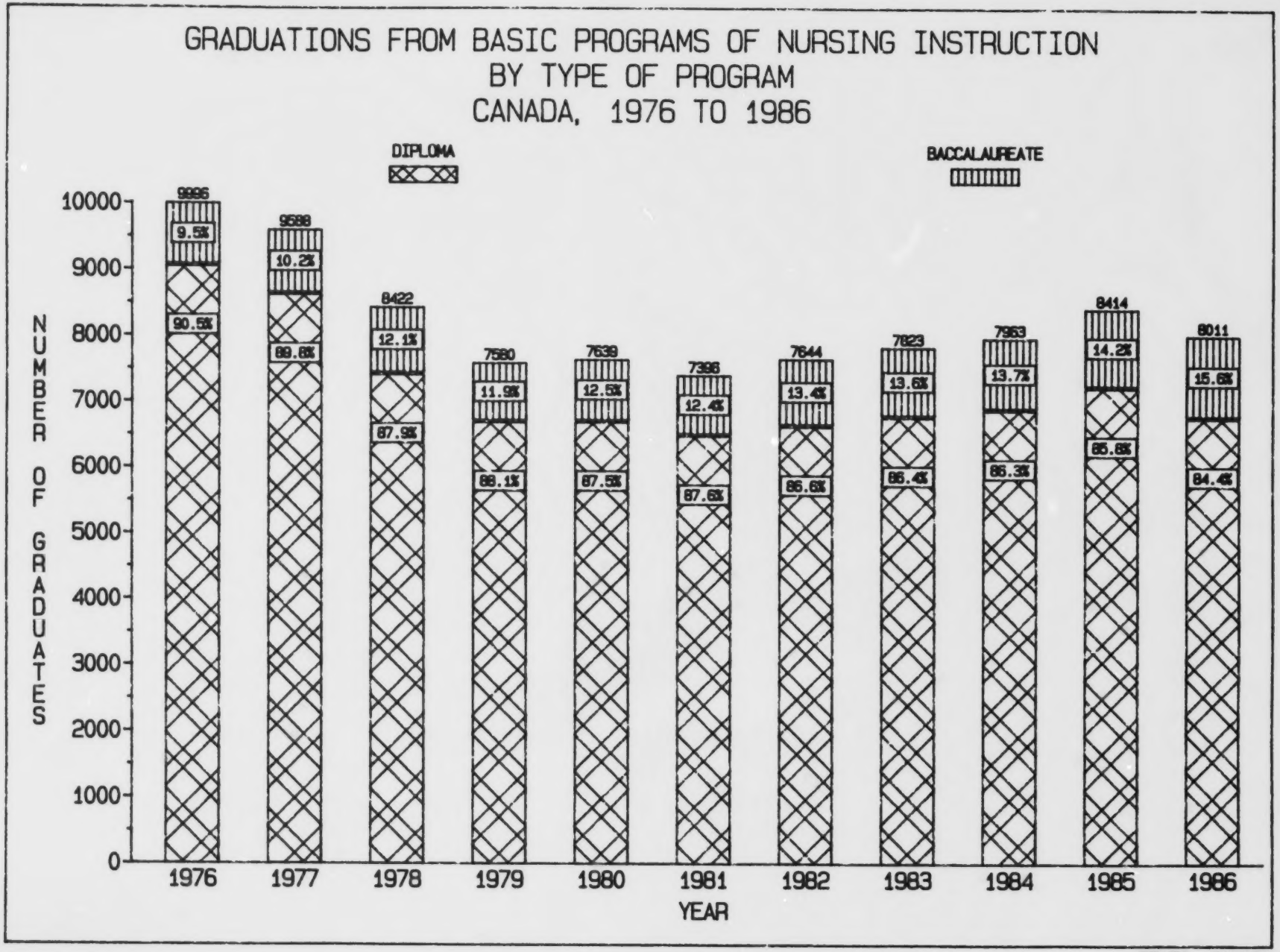
A significant pattern to note is that relating graduation levels from basic programs of nursing instruction to those from all comparable forms of post-secondary study. Between 1978/79 and 1984/85 the proportion of all

community college (including hospital) career program graduates emerging from basic programs of nursing instruction alone fell from 15 percent to 11 percent. The decline recorded among university baccalaureate recipients over the same time period was marginal, the proportion approximating 2 percent in each year. It is difficult to establish the extent to which this decline reflects voluntary participation pattern shifts for basic programs of nursing studies. Factors such as the number of nurse education positions available and student capacity growth in all programs of post-secondary instruction will influence realized enrolment and graduation numbers. A study of health care workers done in the late 1970's of the four western provinces found that in some cases nurse program enrolment quotas could not be filled due to a lack of qualified applicants[60]. A more recent study done by the Ontario Advisory Committee on Nursing Manpower reports that the current number of qualified applicants to that jurisdiction's basic nursing educational programs could support enrolment expansions[61].

Whereas general participation in nursing studies has risen in recent years, the increase has been less than that of post-secondary programs as a whole. On the part of students within the system there has been a shift away from the programs required for initial entry into the nursing profession. Current data availability does not reveal whether this shift is the product of voluntary changes in vocational preference, education facility limitations, or a combination of the two.

2.2.3 Education

Graduates of diploma programs predominate among initiates to the nursing profession. Numbering 6,762 in 1986, fully 84 percent of all graduates of basic nursing programs were diploma recipients. This proportion is below that of 1976, when more than 90 percent of new graduates had earned a diploma. The decreasing proportion of diploma recipients coincides with an absolute decline in the number of graduates of these programs. Although lowest in 1981, and generally rising since that year, the number of nursing diploma recipients was, in 1986, more than 25 percent below that of ten years earlier.


GRADUATIONS FROM BASIC PROGRAMS OF NURSING INSTRUCTION
BY TYPE OF PROGRAM
CANADA, 1976 TO 1986
DIPLOMA
BACCALAUREATE
NUMBER OF GRADUATES
YEAR
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
9996
9588
8422
7580
7639
7396
7644
7823
7963
8414
8011
9.5%
10.2%
12.1%
11.9%
12.5%
12.4%
13.4%
13.6%
13.7%
14.2%
15.6%
90.5%
89.8%
87.9%
88.1%
87.5%
87.6%
86.6%
86.4%
86.3%
85.8%
84.4%
STATS. CANADA

Diploma graduate number declines in 1986 reflect falling program admissions of the early 1980's. This variable has recovered in recent years, however, and in 1986 was at its highest level since 1976. This could lead to graduate number increases in the near future. Consideration must also be extended to the rate at which students drop out of programs of basic nursing instruction. Although exact measures of this variable are not available, a comparison of historical patterns in admission and graduation suggests that the proportion of students completing the diploma program of studies has declined somewhat over the past decade.

Whereas the number of nursing diploma recipients declined between 1976 and 1986, the number of graduates of basic bachelor of nursing programs increased 31 percent during the same period, reaching 1,249 in the final year. Following a decade of gradual increase, enrolment levels fell marginally between 1985 and 1986. It is too early to determine whether this is a precursor of declining graduation levels.

Combining the impact of the trends noted above, the number of graduates of basic nursing programs has risen in almost each year since 1979, although the total for 1986 was almost twenty percent below that of 1976. The absolute decline in graduations from diploma nursing programs has not been matched by a like increase in nursing degree recipients.

Between 1979 and 1986 the number of persons receiving a post R.N. baccalaureate rose 83 percent (see Appendix Table A8). This far exceeded the overall increase in the number of nursing personnel during the same time period (23 percent), and may signify an increasing awareness on the part of practicing professionals of the importance of baccalaureate training to effective nursing practice. This pattern could also represent a knowledge and acceptance of the CNA position supporting a statutory increase to the minimum educational requirement for entry into nursing practice.

It is not unreasonable to presume that this trend to more advanced levels of nursing instruction is largely driven by the changing nature of nurse demand, discussed earlier. Whether the catalyst to change be an upgrading of the minimum educational requirement for practice entry or the

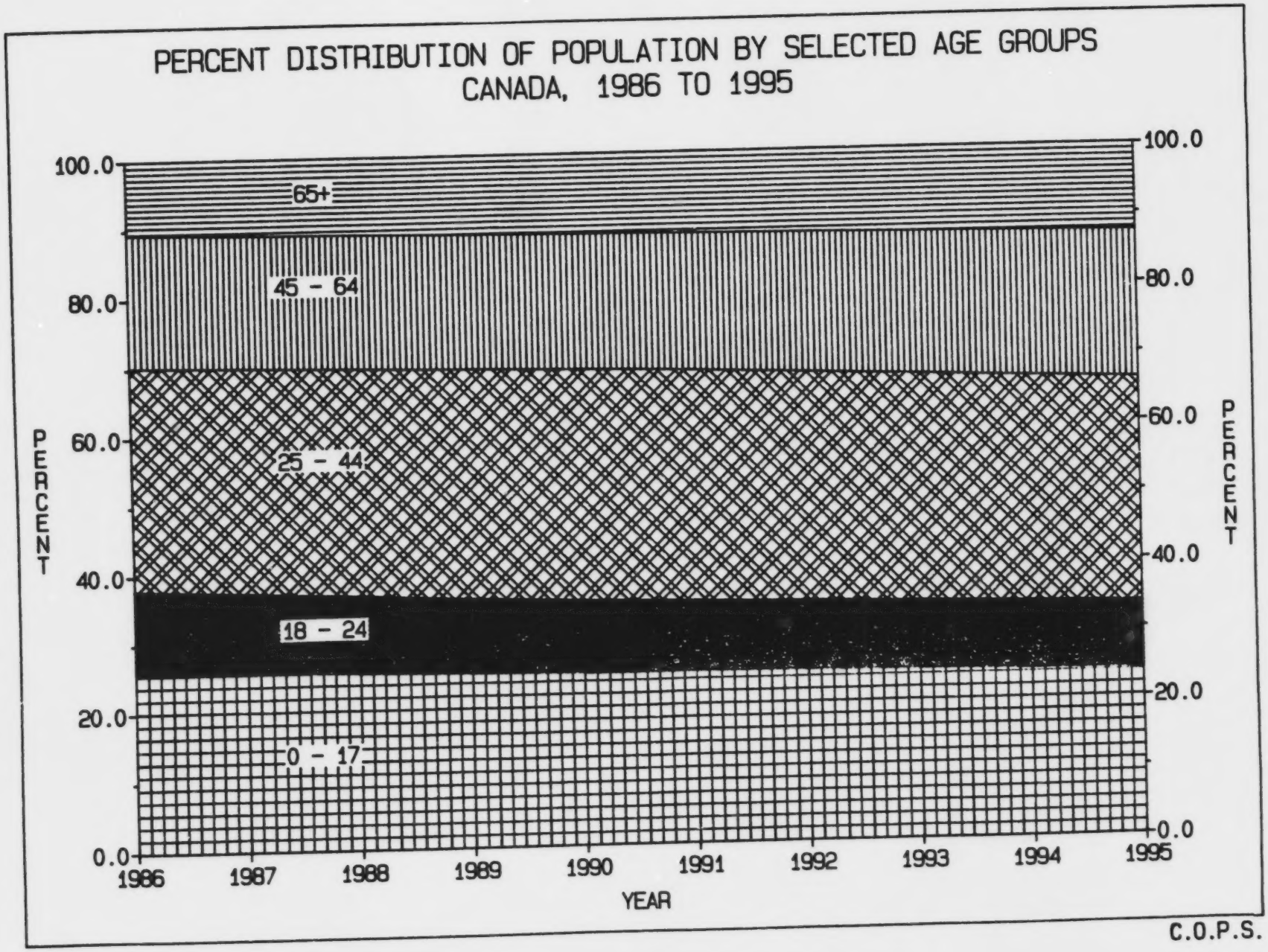
increasing complexity of nursing practice, current trends suggest that these pressures will not ease. As nursing students spend more time within the formal education system the adaptive capacity of the labour market for nursing services, as well as the overall nurse supply, will be affected. Occupational entrants must, in effect, postpone actual labour market participation during the term of the education extension.

An important education related supply issue for the future is that of Canada's ageing population. As the proportion and magnitude of Canada's population aged 65 and over is projected to expand in coming years (thereby increasing the demand for nursing services), that aged 18 to 24 is expected to decline; from 12 percent of the total in 1986 to 10 percent in 1995[62], an absolute decline of 363,500 persons. This is the age group from which most nursing students are drawn, and as it declines so too could entrants to the ranks of the nursing profession. Indeed, projections of new labour force entrants from the formal education system, based on current enrolment patterns, recent graduate employment experience, and demographic projections, suggest that input declines will begin in 1989. These projections are discussed more fully in a later segment of this report.

The potential for falling graduate numbers implies that educators must expand the source population if current levels of education output are to be maintained, for example by actively recruiting male participants. The education system is a primary source of new entrants to nursing practice. The following two sections consider means of potentially expanding service availability by prolonging or enhancing labour market participation among individual nurses who have completed their basic schooling.

2.2.4 Part-time Employment

Although not unique to nursing practice, the proportion of nurses employed on a part-time basis has risen slightly in recent years; from 34 percent of the total in 1979 to 38 percent in 1983[63], the most recent year for which comparable data is available. Current information for hospital employed nurses indicates that this trend has continued.


PERCENT DISTRIBUTION OF POPULATION BY SELECTED AGE GROUPS
CANADA, 1986 TO 1995
100.0
80.0
60.0
40.0
20.0
0.0
65+
45 - 64
25 - 44
18 - 24
0 - 17
PERCENT
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
YEAR
C.O.P.S.

The shift to part-time employment is reflected in each province, for each place of work, and for every branch of nursing practice. The reasons supporting this trend are not clear and are most likely a combination of several factors, discussed below.

Part-time employment may benefit both the employer and the employee. Benefits to nurses include increased flexibility of hours of work, decreased overall job stress, and more time to be devoted to familial responsibilities. However, part-time nursing personnel do not receive the same salaries or benefits as those to which full-time employees are entitled. In most cases they do not have the right to salary increments, a pension plan, or continuing education[64]. The attainment of employee benefit rights for part-time workers is an aim of the CNA and nurse's unions. In 1983, the Federal Commission of Inquiry into Part-time work[65] recommended the extension of employee benefit rights, on a pro-rated basis, to part-time workers.

It has been postulated that one catalyst supporting the move to part-time employment has been a need on the part of employers to cut operating expenses. Where this is an important factor the success of initiatives to extend employment benefits to part-time personnel may influence individual employment opportunities and participation rates. The impact of this change will depend on the extent to which the move in favour of part-time employment is voluntary.

The hours of work preference of individual practicing nurses dictates the actual availability of nursing services and, conversely, the number of individual practitioners required to meet the overall demand for nursing care. According to a 1980 study done by the Alberta Hospital Association the average part-time nurse works two days per week[66]. Consequently, on average, five part-time nurses must be educated, registered and available for work to provide the services of two nurses employed on a full-time basis. As in all labour markets, equilibrium in that for nursing services involves more than simply equating the number of available nursing personnel with the number of established nurse employment positions.

The prevalence of part-time employment among nurses underscores the importance of labour market analysis based in full-time equivalencies; consideration must be extended to hours of work.

2.2.5 Attrition and Turnover

A number of recent studies have demonstrated that if nurses did not have the option of part-time employment the available stock of nursing personnel could be appreciably diminished. Conversely, an inability of nurses to attain such employment has been linked (along with other job related factors) to a high number of non-practicing nursing professionals. These other factors included an inability to deliver quality patient care (a consequence of fiscal restraint and staffing reductions), hours of work (the necessity of week-end and shift work), insufficient involvement in the decision making process, and financial remuneration inadequate to compensate for working conditions (including a narrow salary scale). 'Apart from personal factors, such as transfer of a spouse, or pregnancy, job related factors were the major reasons for nursing turnover and attrition'[67].

Global, reliable estimates of the rate at which nurses leave the professional labour force are not available, although it is known that the average working life of a nurse is relatively short[68]. A 1981 study done for the four western provinces by Peat, Marwick and Partners used an assumed average worklife of between ten and twelve years, an assumption which led to a net occupational attrition rate* of 8 to 10 percent[69] per annum. This assumption was not supported by any quantitative evidence, but represented instead a reasonable range based on consultation with professional associations and nurse employers; an educated guess.

These estimates receive quantitative support from a study done at the University of British Columbia, based upon a longitudinal analysis of Registered Nurses Association of British Columbia membership, from which a general occupational attrition rate of 10 percent can be calculated[70].

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* Defined as net movement between active and inactive status, net movement between occupations, and attrition due to death or retirement.

This figure represents the probability that a person holding practicing registration status at the start of the year will relinquish that status before year's end. Combining this movement with that from non-registration (albeit previously registered) or inactive status to active registration provides a net attrition of approximately 5 percent per annum.

It should be noted that these figures represent exits from the nursing labour force within the provinces studied. It would therefore include personnel who leave these jurisdictions to practice their profession in an alternate location. Preliminary national estimates of rates of occupational attrition have been produced by Canadian Occupational Projection System personnel, based on age specific information from the 1971 and 1981 Census' of Canada. For non-supervisory nurses involved in direct patient care, this rate approximates 8 percent. Methodological constraints make this a lower bound estimate.

These general figures mask important demographic differences in the propensity of individuals to leave active nursing practice. The British Columbia study mentioned earlier quantified, and various other studies support, distinct age specific patterns of labour market activity. Among preretirement groups the staying power of active nurses was lowest at 25-29 years of age, wherein the average annual propensity to relinquish practicing registration status was 14 percent. This figure fell with each age cohort, to reach a minimum of 6 percent among nurses aged 50-54[71]. The observed relationship between age and attachment to nursing practice make the age distribution of the current nursing labour force an essential factor of consideration to analysis of potential nurse supply levels.

A common reason given to explain the observed pattern of labour market participation is that many nurses leave active practice (or are available only to part-time employment) during the child-rearing years. A reason given for high attrition among young nurses, however, is a system of education which leaves students inadequately prepared for the rigours of nursing practice. Unrealistic job expectations and job dissatisfaction may transfer attrition from the schools to that from the profession[72].

Flows between the household sector and the nursing labour market do not necessarily run in one direction alone. Nurses who leave active practice to raise their family may wish to return as familial responsibilities allow, whether to full-time or part-time employment. Preliminary estimates suggest that during 1986 approximately 9,100[73] persons entered or re-entered the nursing labour force from the household sector. This figure represents 5 percent of the total number of nurses employed in direct patient care throughout Canada during that year. As mentioned in the discussion of technological change, the ability of these persons to resume active practice may be limited by interim changes to skill requirements and practice techniques. Nurse refresher courses are available to facilitate this transition.

From a supply perspective the issue of the non-practicing nurse represents a significant unknown. One Alberta study found that two-thirds of the non-practicing nurses surveyed would be willing to return to active professional practice, but only if certain work-related problems could be remedied. Fully 42 percent of this total stated that part-time work must be available[74]. The full magnitude of this potential labour force is currently unknown, although some writers contend that nursing shortages could be eliminated if members of this group were enticed back to active practice.

The reasons given to explain high turnover of nursing personnel reflect those for high attrition. Additional catalysts include the need for change (often linked to insufficient challenge), and the ease of moving to another nursing position.

National data regarding the velocity of nursing turnover is limited in coverage to health care institutions. During the 1977/78 fiscal year Canadian public hospitals experienced an 18* percent turnover in full-time

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* These calculations are based upon unpublished information collected by Statistics Canada and Health and Welfare Canada in an annual survey of health care facilities. The turnover rate is estimated by applying the total number of separations from full-time employment during the reference year against that year's average full-time employment level. Average annual employment was estimated by averaging the year-end employment totals for the reference year and that preceding.

nursing staff. This figure is somewhat higher (21 percent) if only non-supervisory graduate nurses are considered. In more recent years this rate has fallen substantially, to reach 12 percent in fiscal 1984/85, again being a bit higher (13 percent) for non-supervisory graduate nurses. Not only has the proportion of separations declined, so too has the absolute number, from 13,021 during fiscal 1977/78 to 9,736 in 1984/85 for all nurses.

These national figures are somewhat lower than those calculated in individual provincial studies. This finding may reflect both real national variance and methodological differences. Provincial calculations of turnover ranged from 0 to 80 percent for individual Nova Scotia hospitals in 1980[75], through 26 to 33 percent in 1979-80 for Alberta hospitals and nursing homes[76], to approximately 0 through 32 percent in New Brunswick in 1980[77].

The current environment of fiscal restraint may precipitate revisions to the work environment within which many nurses function. The hiring of replacement personnel is expensive for employers. Conservative 1982 estimates place the combined cost of such items as on-the-job training and orientation at approximately $3000 per newly hired general duty nurse[78]. The high rate of turnover now associated with hospital employment therefore represents a serious drain on operating funds. These expenditures can in part be controlled. Recent studies verify the proposition that turnover could be reduced with the implementation of specific job related changes. A 1981 Nova Scotia study estimates that of the 80 percent variance in intention to leave (a good predictor of actual quits) which could be explained, almost 50 percent could be linked to factors which are within the realm of management control[79].

Major reasons given for non-participation, including hours of work, dissatisfaction with the decision making process and an inability to deliver quality patient care, are much the same as those associated with high turnover. As a consequence, operational changes implemented to decrease the latter could also affect the former, thereby increasing the availability of nursing personnel.

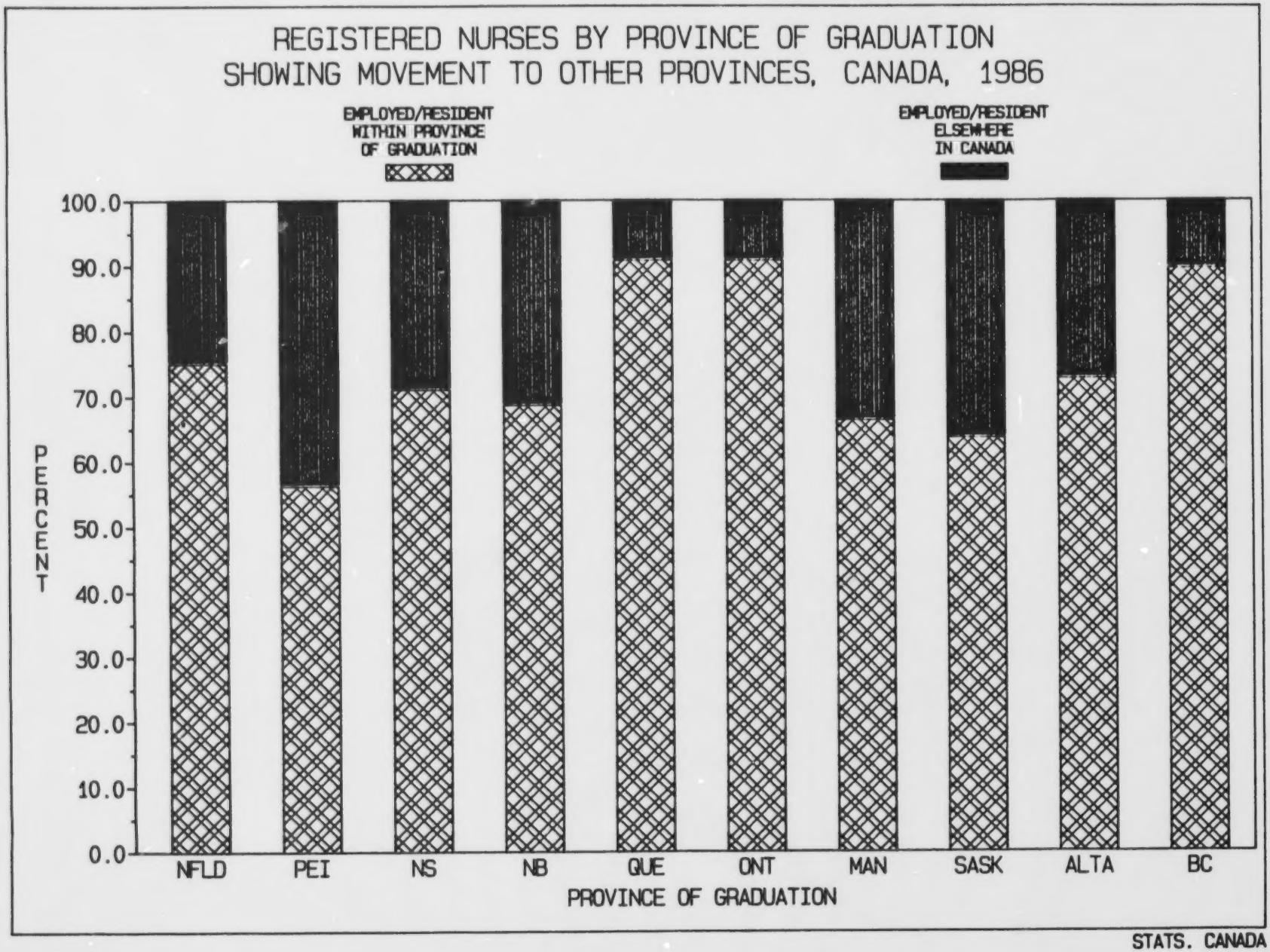
2.2.6 Migration

Revealing patterns emerge upon examination of the limited data available regarding interprovincial movements of nursing personnel. These data are restricted to long-term flows, cross-tabulating place of initial graduation with that of current employment or residence. Short-term fluctuations in direction and magnitude of flow are therefore not explicitly identifiable.

The provinces of Quebec, Ontario and British Columbia have retained approximately 90 percent of the registered nurses educated within their respective systems of education (see Appendix Table A11). The remaining provinces have been less successful, representing a significant drain on limited education resources. In 1986, for example, only 56 percent of Canadian nurses who had received their initial schooling in Prince Edward Island were still employed or resident in the province. British Columbia, Alberta and Ontario are the only provinces (with the exception of the Yukon and Northwest Territories, which have no nurse education facilities) to employ more nurses than they educate (see Appendix Table A12). These provinces are therefore net importers of skilled nursing personnel.

Table 2.6 provides hourly rates of pay for registered general duty/staff nurses as stipulated in major collective agreements, both provincial and federal. Direct provincial comparisons are complicated by non-consistent contract periods, differing conditions of work, and non-adjustment to account for cost of living discrepancies. None-the-less, this information does not contradict the proposition that inter-provincial real wage differentials influence migration patterns. The lowest hourly earning rates are in the eastern provinces, which have consistently experienced significant outflows of nursing personnel. Conversely, Ontario and Alberta, which have enjoyed high levels of nurse in-migration, also have relatively high hourly pay scales for their hospital employed nurses.

The broad implications of general budgetary restraint could, in the future, influence provincial approaches to nurse education and recruitment. It is expensive to educate a nurse, and the high rate of mobility displayed by nursing graduates could force legislators to attach residency requirements


REGISTERED NURSES BY PROVINCE OF GRADUATION
SHOWING MOVEMENT TO OTHER PROVINCES, CANADA, 1986
EMPLOYED/RESIDENT WITHIN PROVINCE OF GRADUATION
EMPLOYED/RESIDENT ELSEWHERE IN CANADA
PERCENT
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
NFLD
PEI
NS
NB
QUE
ONT
MAN
SASK
ALTA
BC
PROVINCE OF GRADUATION
STATS. CANADA

REGISTERED NURSES BY PROVINCE OF EMPLOYMENT/RESIDENCE SHOWING PERCENT DISTRIBUTION BY PLACE OF GRADUATION CANADA, 1986

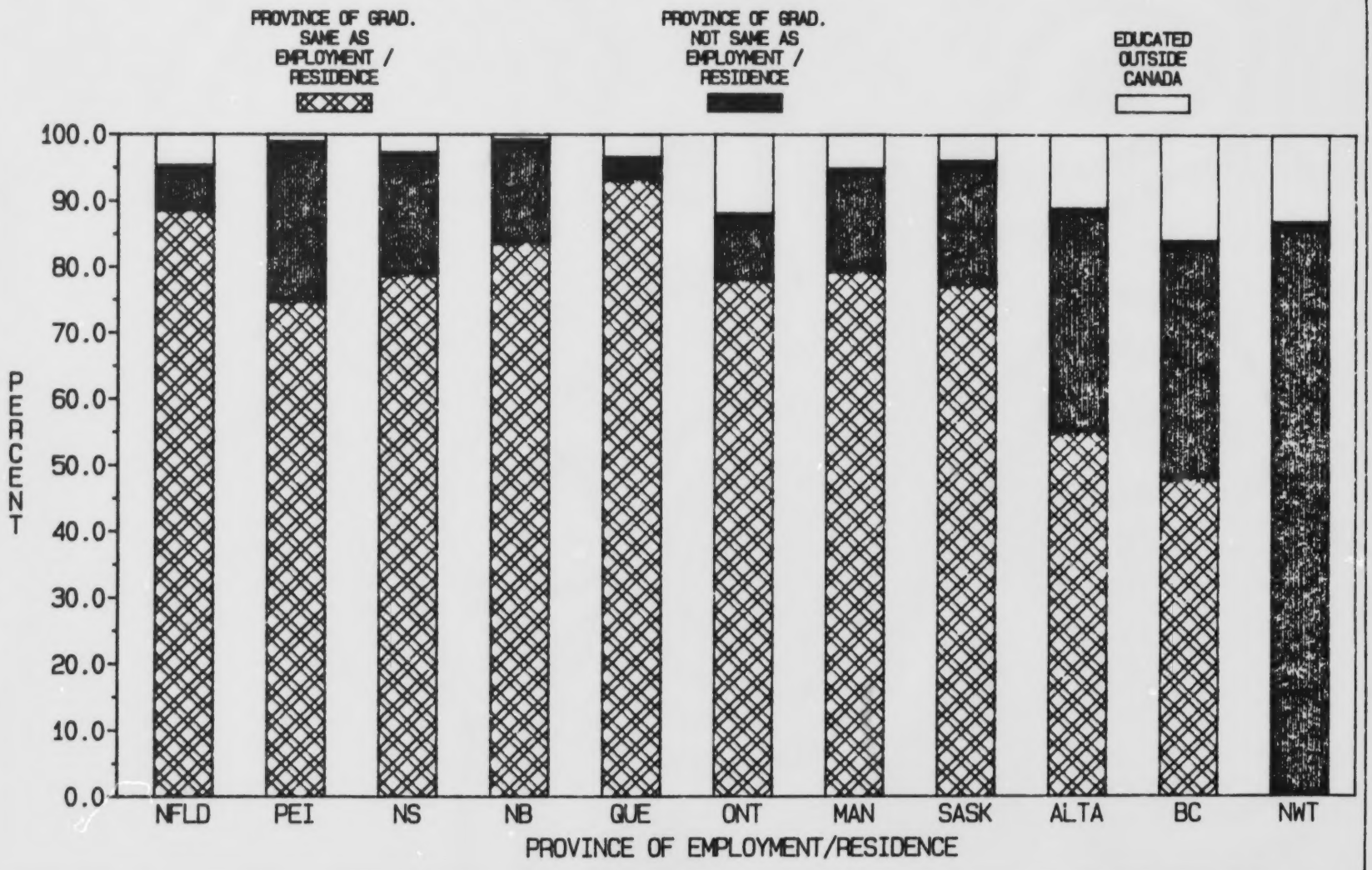


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Table 2.6

HOURLY RATES OF PAY, REGISTERED GENERAL DUTY/STAFF NURSE, MAJOR HOSPITAL AGREEMENTS BY PROVINCE, JANUARY, 1987

Province/ Region	Hourly Rate Minimum $	Hourly Rate Maximum $	Number[1] of Steps	Daily Hours of Work	Effective Date	Expiry Date
Provincial						
Newfoundland	11.48	14.66	8	7.5	1 Jan/87	30 Jun/87
Prince Edward Island	12.11	14.60	5	7.5	1 Apr/87	31 Mar/88
Nova Scotia[2]	12.99	15.37	6	7.5	1 Apr/87	31 Mar/88
New Brunswick*	11.39	13.84	5	7.5	1 Jul/85	30 Jun/86
Quebec	12.03	16.47	12	7.25	1 Jan/87	31 Dec/87
Ontario[3,4]	14.94	17.02	8	7.5	1 Apr/86	31 Mar/87
Manitoba	12.68	15.77	7	7.75	1 Jan/87	31 Dec/87
Saskatchewan	12.94	16.54	7	8.0	1 Jan/87	31 Dec/87
Alberta	14.25	16.47	6	7.75	1 Jan/87	31 Dec/87
British Columbia*	12.85	14.85	6	7.5	1 Apr/84	31 Mar/85
Federal[5]						
Atlantic	12.00	14.30	6	7.5	3 Jan/87	30 Sep/87
Quebec	13.50	16.98	8	7.5	3 Jan/87	30 Sep/87
Ontario, Yukon, Northwest Territories	14.00	16.42	7	7.5	3 Jan/87	30 Sep/87
Manitoba, Alberta	14.25	16.38	6	7.5	3 Jan/87	30 Sep/87
Saskatchewan	13.98	15.78	5	7.5	3 Jan/87	30 Sep/87
British Columbia	14.89	17.36	6	7.5	3 Jan/87	30 Sep/87

1. Refers to the number of wage increments specified in the contract between the salary minimum and the maximum.

2. Agreement between Halifax Infirmary Hospital and the Nova Scotia Nurses Union.

3. Agreement between Ottawa Civic Hospital and the Ontario Nurses Association.

4. Arbitral Award - 1985 rates + 4.25%.

5. Agreement between Treasury Board, Government of Canada and the Professional Institute of the Public Service of Canada, Nursing Group.

* Negotiations not completed for 1986.

Source: Canadian Nurses Association, Department of Work Life Affairs, Annual Salaries/Salaires annuels, Nurses/Infirmières et infirmiers, Major Hospital Agreements/Conventions signées dans les principaux hôpitaux, Canada, January/janvier 1987, Ottawa, Ontario, 1987.

to schooling opportunities. This form of government involvement is currently limited to the allocation of education loans and grants, and used primarily to promote practice in specific geographic areas, or education in fields and specialties experiencing severe practitioner shortages[80].

Net international flows of nursing personnel are difficult to monitor due to limited data availability regarding emigration from Canada. Available information is restricted to movements into the United States, and even here data problems exist. Considering the limitations, however, these data (see Table 2.7) seem to suggest that Canada is currently losing more nurses to emigration than are arriving through the immigration process. Unfortunately, definite conclusions cannot be drawn since all return migration, to either country, is not captured by the data collection technique utilized. Many American hospitals actively and directly recruit graduates of Canadian schools of nursing, suggesting that most Canadian nurse emigrants may be destined for the United States market[81].

In general, the migration of nursing personnel, whether international or interprovincial, is primarily a function of real income differentials[82] and relative employment opportunities. If migration to the United States may be used, therefore, to approximately gauge the relationship between nursing demand and supply in Canada, it would seem that the nursing shortage claimed in 1981 has softened somewhat, although emigration declines are noted in recent years.

The realized magnitude of migratory flows are dependant upon the nature of immigration policies in effect within the receiving nation. From May 1982 through 1985 Canadian policy stipulated that independent immigrants (excluding entrepreneurs, self-employed workers and retirees) should have pre-arranged employment in Canada prior to entering this country. Administrative changes also initiated in 1982 saw a strengthening of domestic employee search requirements and a tightening of nurse credential validation procedures, diminishing overseas recruitment. These changes in themselves would restrict immigration. Since 1983 the number of persons entering Canada with arranged employment in a nursing position has fallen significantly. This is in accord with patterns in Canadian nurse

Table 2.7

INTERNATIONAL NURSE MIGRATION: IMMIGRATION TO CANADA - TOTAL, WITH A JOB OFFER, AND FROM THE UNITED STATES; AND EMIGRATION TO THE UNITED STATES, CANADA AS COUNTRY OF LAST PERMANENT RESIDENCE, 1975 TO 1986

	Immigration[1]			
Year	Total	With a Job Offer	From the United States	Emigration to the United States[2]
1975	1,861	573	200	327
1976	1,108	420	170	291
1977	599	64	118	533
1978	406	21	100	501
1979	467	44	106	535
1980	653	114	103	---
1981	977	306	150	---
1982	999	275	169	276*+
1983	358	28	83	288*+
1984	300	16	94	380*
1985	283	12	70	379*
1986	386	18	103	353*

--- Data not available

* Reference period is October 1 of year preceding reference year to September 30 of reference year.

\+ Includes nurses, pharmacists, dietitians, therapists and physician's assistants. This latter occupational group is not recognized in Canada.

Source: 1. Employment and Immigration Canada, Immigration Statistics Branch, Landed Immigrant Data System, Ottawa, Ontario.

2. United States Department of Justice, Immigration and Naturalization Service, Immigrants Admitted Whose Country of Last Permanent Residence was Canada, by Each Occupation, Washington, D.C., United States.

emigration to the United States, corroborating the suggestion that Canada's nurse shortage of the early 1980's has diminished, if only marginally.

Up to this point in the discussion of factors influencing nurse human resource flows and stocks most current trends have pointed to an eventual decline in the availability of nursing personnel. Immigration can be a significant vehicle for supplementing domestic sources of supply, however. Recent changes to Canadian immigration policy as it applies to nurses, which include removal of the selected worker pre-arranged employment restriction for independent nurse immigrants, suggest that movement of nurses into Canada may once again begin to expand*. The actual magnitude of growth will depend upon the number of nurses wishing to enter Canada, their ability to meet nurse registration standards, and the targets set on their admission** (applied to immigrants in the selected worker category only). Set at approximately 800[83] in 1986, this target has not restricted the flow of foreign nurses into Canada. The target level was raised to approximately 1,400 for 1987.

2.2.7 Summary of Supply

The preceding briefly outlines the factors influencing the availability of nursing personnel. Important considerations include the number of new entrants from the formal education system, labour market re-entrants from the household sector, the proportion of nurses available for part-time employment alone, and the rate at which nurses depart active nursing practice. Recent patterns of labour market entry and participation suggest that the availability of nursing personnel may decline in the future, although registration in Canada's nursing associations continues to exhibit strong growth. A study done in 1980 by the Alberta Hospital Association

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* Although independent immigrants entering Canada as nurses no longer specifically need pre-arranged employment, this requirement may continue to apply in practice due to the weight of this component in the overall immigrant assessment and acceptance process.

** See Employment and Immigration Canada, Determining the Occupational Composition of the Selected Immigrant Worker Category for a description of the methodology used in determining target levels.

concluded that perceived nurse shortages were not a consequence of insufficient numbers of nursing personnel, but rather of the system's inability to encourage long term labour market participation. If this is indeed the case appropriate work environment changes could increase the proportion of nurses prepared to work full-time, cause the rate of attrition to fall, or encourage student participation in basic programs of nurse instruction. Each of these outcomes would positively influence the supply of nurses.

III. INTERACTION OF DEMAND AND SUPPLY - CURRENT AND PROJECTED LEVELS

3.1 Current Market Imbalance Indicators

The major indicators of labour market disequilibrium are the unemployment experience of practitioners and the success of employers in finding suitable job candidates. Table 3.1 provides statistical measures of these variables. Patterns in these data corroborate those evidenced in international migration flows, and support the contention that the nurse shortage of the early 1980's has moderated somewhat in recent years.

Unemployment Insurance Claimants as a proportion of total nurse employment rose from a low of just above 2 percent in 1981 to almost 4 percent in 1986. In that year the all occupation average was 12 percent. This figure for nurses alone reached its highest level in 1983, a year in which National Job Bank vacancies per 1,000 employed was at its minimum. Recent trends in both of these series suggest that the labour market for nursing services, albeit less tight than in 1981, is once again beginning to contract. Indeed, if media interest is any gauge of the condition of Canada's labour market for nurses, recent activity increases support the validity of this conclusion.

This quantitative information in fact underestimates the full magnitude of nurse supply and demand imbalances. Most respondents to a 1981 survey of New Brunswick hospitals reported that of their nurses practicing in a clinical specialty ward or unit less than 1 percent had any post-basic training in the relevant clinical specialty[84]. When candidates possessing the desired qualifications cannot be found, employers often must hire general duty nurses and then provide on-the-job training. As technology continues to advance, and nursing practice becomes more specialized, the ability of hospitals to meet their staffing needs by preparing personnel in this manner may become increasingly limited. Problems created by shortages in the total number of nurses able and willing to practice are compounded, therefore, by an 'invisible shortage'; those who are available often do not possess the skill range required by the employer.

Table 3.1

NURSE EMPLOYMENT, UNEMPLOYMENT INSURANCE CLAIMANTS, UNEMPLOYMENT INSURANCE CLAIMANTS TO EMPLOYMENT, NATIONAL JOB BANK VACANCIES AND NATIONAL JOB BANK VACANCIES PER 1,000 EMPLOYED, CANADA, 1981 TO 1986

Year	Employment	Unemployment Insurance Claimants[1]	Unemployment Insurance Claimants as a Percent of Employment	National Job Bank Vacancies[2]	National Job Bank Vacancies per 1,000 Employed
1981	180,583	3,665	2.03	---	---
1982	185,354	6,158	3.32	251	1.35
1983	187,578	7,308	3.90	50	0.27
1984	191,278	7,168	3.75	84	0.44
1985	198,296	7,489	3.78	113	0.57
1986	202,479	7,191	3.60	133	0.66

1. The average number of claimants at the end of each quarter. Sickness, maternity, retirement and fishing claimants have been removed.

2. The average number of vacancies on file on the first Tuesday of each month.

--- Data not available.

Source: Employment and Immigration Canada, Labour Market Outlook and Structural Analysis Branch, Canadian Occupational Projection System Databank, Ottawa, Ontario.

3.2 Projecting Nurse Demand and Supply

Several writers, covering various jurisdictions, have attempted to project the path which nursing supply and demand will pursue in the coming years. A key assumption in many of these is that current patterns will either persist or change very little. Without exception analysts conclude that nursing shortages will become an increasingly significant problem.

These conclusions for individual jurisdictions are supported by national projections from the Canadian Occupational Projection System, provided in Table 3.2. The overall supply of nursing personnel is not among the

Table 3.2

PROJECTIONS OF NURSE DEMAND AND OCCUPATIONAL LABOUR FORCE ENTRANTS, CANADA, 1987 TO 1995

Year	Demand[1]	Replacement Demand[3]	Expansion Demand[4]	New Requirements[5]	Entrants and Re-entrants from the Household Sector[p]	Entrants from the Formal Education System	New Supply[6]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1987	207,125	15,907	N/A	N/A	8,800	8,754	17,554
1988	208,840	16,039	1,715	17,754	8,900	8,759	17,659
1989	210,591	16,173	1,751	17,924	8,700	8,755	17,455
1990	212,777	16,341	2,186	18,527	9,200	8,639	17,839
1991-1995	222,619[2]	83,808	9,842	93,650	46,200	42,174	88,374

1. Based on the Reference 1987 Growth Scenario.

2. At the end of the period.

3. Losses to employment from attrition. The COPS preliminary estimated rate of attrition has been used for the purpose of these calculations.

4. Net annual change in the demand for nurses.

5. Aggregate requirements for new nurse human resources, generated by totalling replacement demand and expansion demand.

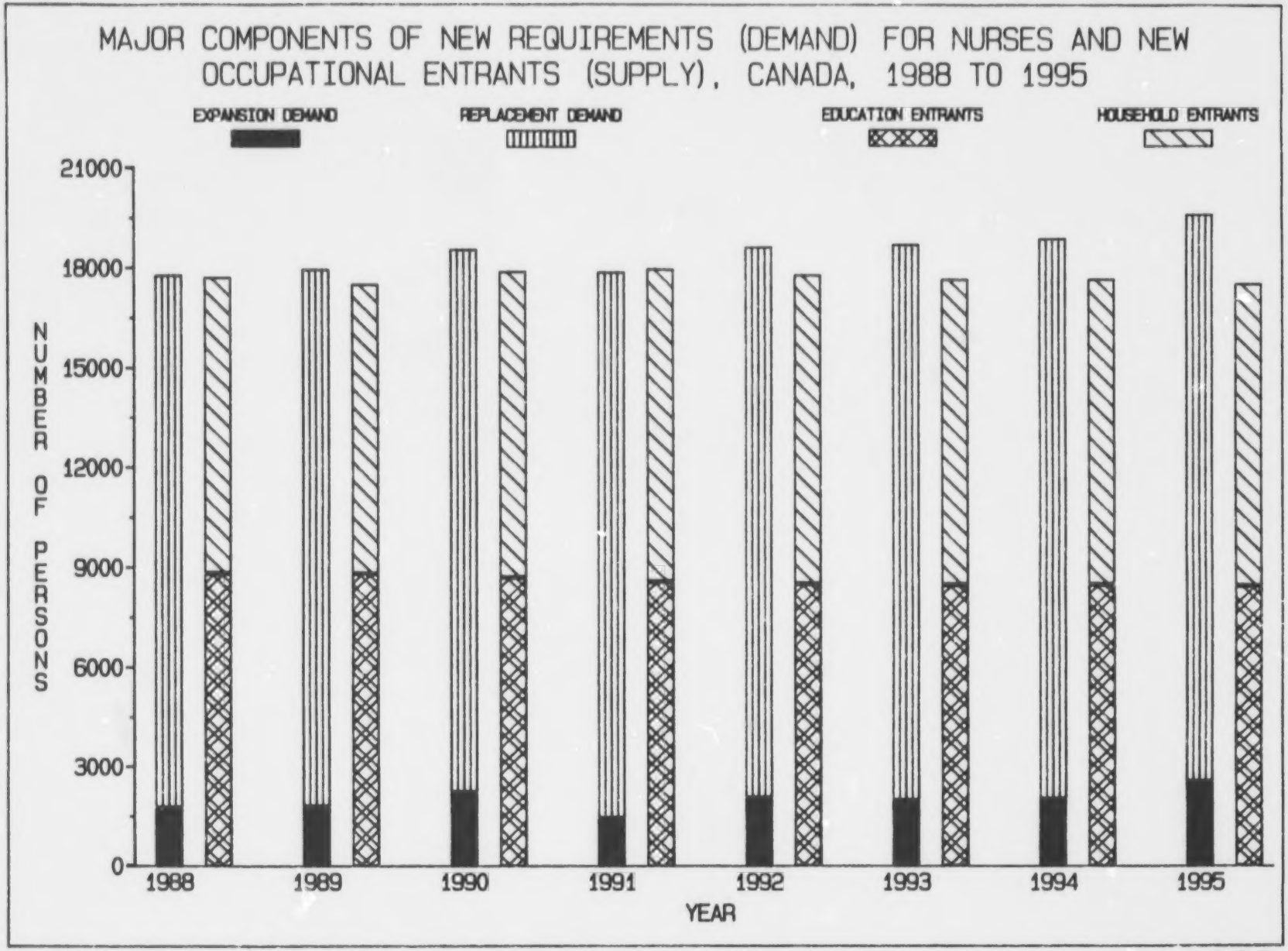
6. Excludes immigrants.

p - Preliminary, subject to revision.

N/A - Not applicable.

Source: Employment and Immigration Canada, Labour Market Outlook and Structural Analysis Branch, Canadian Occupational Projection System Databank, Ottawa, Ontario.

variables available. However, projections of declining levels of new occupational entrants from the formal education system, coupled with generally stable numbers of labour market entrants from the household sector, suggest that future additions to the nurse labour force (column 7) will be insufficient to meet new requirements (column 4). Whereas flows into this


MAJOR COMPONENTS OF NEW REQUIREMENTS (DEMAND) FOR NURSES AND NEW OCCUPATIONAL ENTRANTS (SUPPLY), CANADA, 1988 TO 1995
EXPANSION DEMAND
REPLACEMENT DEMAND
EDUCATION ENTRANTS
HOUSEHOLD ENTRANTS
NUMBER OF PERSONS
21000
18000
15000
12000
9000
6000
3000
0
1988
1989
1990
1991
1992
1993
1994
1995
YEAR
C.O.P.S.

labour force from the household and education sectors exceed labour market exits through attrition (column 2), suggesting gradually increasing nurse availability levels, this increase will not be sufficient to also cover demand increases brought about by new nurse employment opportunities (column 3). Indeed, the difference becomes greater in the later years of the projection period, suggesting persistent, if not enhanced, nurse demand and supply imbalances. Interprovincial differences in health care delivery patterns hamper direct extension of these results to individual jurisdictions.

Immigration is an important means of supplementing domestic labour supply. Nurse immigration levels are the result of both government policy and the number and quality of applicants for immigration. It is therefore difficult to project this variable with reasonable certainty. Over the past four years nurse immigration levels have ranged between approximately 300 and 400 individuals annually. Although recent policy changes suggest nurse immigration numbers may increase, it is unlikely that this will be sufficient to cover the short-fall projected. It should be noted that nurse immigrants do not necessarily find nursing employment.

It is emphasized that the projections which have been discussed so far are based on the presumption that the labour market for nurses is approximately static; present forces and patterns of employment will be altered only marginally, if at all. As discussed throughout Section II, however, this is not realistic. The trends identified may affect the role of the nurse, work environment, formal and continuing education requirements, schooling participation patterns, and patient population characteristics. Revision in these areas would alter the shape of today's model of nursing care delivery. Indeed, the preceding suggests that projections based in current labour market patterns may actually underestimate the magnitude of potential labour market imbalances. The dynamic challenges which the future will bring to nurses, their employers, legislators, educators and leaders are significant and far reaching.

IV. CONCLUSIONS AND IMPLICATIONS

This report has concentrated on major trends affecting today's labour market for nurses as they may influence the future demand for and/or supply of nursing human resources. That other forces will materialize is unquestionable. The challenges represented by these alone, however, suggest a future for nursing in Canada in which adjustment, creativity and vision are as crucial to market operation and governance as they were in the past.

Major factors influencing nurse demand include technological innovation, an expanding role for nurses in health care delivery and an ageing Canadian population. Each of these issues indirectly affect the supply of nursing personnel, via such channels as educational requirements, movements into the profession and labour force participation. Unfortunately, if current trends continue the general effect on the labour market for nurse human resources could be to enhance demand while diminishing supply.

Combining these influences creates a labour force which is becoming increasingly inflexible. As the time required to educate nurses expands, and as nursing practice becomes more specialized, more time will be required to remedy perceived labour market imbalances. This is not meant to suggest that current forces operating within the Canadian labour market for nurses do not warrant a move to more advanced levels of nurse education. It does imply, however, that labour market planning will become increasingly important in the future, as will the development of tools to support planning activities.

The provincial focus of health care regulation in Canada has, in the past, limited the direct involvement of federal government agencies in the labour market for nursing personnel. One important exception is the Federal/Provincial Advisory Committee on Health Human Resources, an intergovernmental committee whose members include provincial, territorial and federal representatives of the departments responsible for health and post-secondary education. This body acts as a forum for information exchange, as a prerequisite to legislative and planning consistency. As the labour market

for nurses evolves the role of this agency in promoting interprovincial communication may increase in importance.

With regard to Employment and Immigration programs of note include immigration, training support initiatives (for example Canadian Jobs Strategy), and the various COPS systems*. Each of these may gain increased importance in the future, the first two as methods of supplementing labour supply, the latter as a potentially significant planning tool. To fully realize its potential, however, the COPS projection system must incorporate functional relationships specific to this market, recognize the rate at which it is evolving, and accommodate, as feasible, provincial structural differences.

The CNA has brought a degree of national consistency to nurse preparation and regulation, and the development of a national system of certification in nursing specialties is but an extension of this tradition. Although this agency has exhibited in the past a capacity to effectively respond to changing parameters of nursing practice the dual challenge of a declining source population and expanding frontiers of nursing practice is not insignificant.

As technological change alters the tools, techniques and scope of nursing practice, educators will be faced with the problems of adapting instruction programs to reflect the working environment into which graduates will proceed. Not only educational content, but also instruction vehicle and level may be affected. A shifting emphasis on degree level basic preparation and increasing demand for continuing and specialty education will test the adaptive capabilities of institutions of nurse instruction.

The specific parameters of individual nurse practice are strongly shaped by their employers and, where applicable, their unions. Establishment specific adjustments made in response to technological innovation, resource constraints, shifting health care delivery patterns, an ageing Canadian

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* For example, the COPS Demand Projection System and the Student Flow Model.

population and changing patient and health care provider expectations will be a constant challenge to the adaptive capabilities of these constituencies.

Of the bodies outlined above, however, perhaps none will be affected by the challenges of the future as directly or as profoundly as will individual Canadian nurses. Adjustments may be required in the areas of job skills, practice responsibility, and place of work. It is to be hoped that these adjustments are facilitated. As discussed, an unfavourable practice environment can cause the availability of nursing personnel to decline. The ease with which individual nurses adapt to the changing nature of nursing practice, and therefore their willingness to remain in the nurse workforce, may be a direct reflection of the success of the agencies discussed above in identifying and responding to this same challenge.

REFERENCES

1. See, for example, Evans, R.G., Strained Mercy: The Economics of Canadian Health Care, Butterworths, Toronto, Ontario, 1984.

2. Brothers, K., Kazanjian, A., and Wong, E., Life Cycle Activity Patterns of Nurses in British Columbia: Forecasting Future Supply and Professional Life Expectancy, University of British Columbia, Division of Health Services Research and Development, Vancouver, British Columbia, March, 1985, p. 1.

3. Canadian Nurses Association, The Leaf and The Lamp, Ottawa, Ontario, 1968, p. 61 and Soderstrom, L., The Canadian Health System, Croom Helm, London, Great Britain, 1978, pp. 16-17.

4. Soderstrom, 1978, p. 17.

5. Federal/Provincial Advisory Committee on Health Human Resources, Catalogue on Health Manpower Legislation - 1985 Edition, Health and Welfare Canada, Health Human Resources Division, Ottawa, Ontario, 1985, p. 112.

6. Canadian Nurses Association and Statistics Canada, Nursing in Canada, Personnel infirmier au Canada, 1985, Ottawa, Ontario, December, 1986, p. 45.

7. Employment and Immigration Canada, Labour Market Planning and Adjustment Branch, Manpower Planning (Resources and Services), Registered Nurses in Canada; Selected Employment Issues and Data, Ottawa, Ontario, October, 1981, p. 5.

8. Ibid, pp. 10-11.

9. Leung, B., Education and Regulation of Selected Health Occupations in Canada; Nursing Manpower, Department of National Health and Welfare, Health Manpower Directorate, Health Manpower Report No. 7-74, Ottawa, Ontario, 1974, p. 3.

10. Soderstrom, 1978, p. 83.

11. Employment and Immigration Canada, 1981, pp. 10-11.

12. Ibid, pp. 12-15.

13. Employment and Immigration Canada, Occupational and Career Information Branch, background research conducted for the development of the National Occupational Classification, Nursing Occupations, 1987.

14. Canadian Nurses Association, Entry to the Practice of Nursing: A Background Paper, Ottawa, Ontario, April 1982, p. 14.

15. Association of Registered Nurses of Newfoundland, Nurse Manpower Report, St. John's, Newfoundland, July, 1982, p. 27.

16. Registered Nurses' Association of Ontario, Report of Task Force on Nursing Shortage, Toronto, Ontario, April, 1981, p. 9.

17. Canadian Nurses Association, April, 1982, p. 16.

18. Ibid, p. 2.

19. Employment and Immigration Canada, 1981, p. 25.

20. Jenny, J.L., Issues Affecting Nurses' Hospital Employment in the '80's, A discussion paper prepared for the Canadian Hospital Association, Ottawa, Ontario, November, 1982, p. 5.

21. Employment and Immigration Canada, 1981, p. 25.

22. Statistics Canada, Health Manpower Statistics Section, Health Division, Registered Nurses Management Data, Ottawa, Ontario, 1986.

23. Statistics Canada, Household Surveys Division, Catalogue No. 71-001, 'The labour force', Ottawa, Ontario.

24. Statistics Canada and Health and Welfare Canada, Annual Return of Health Care Facilities - Hospitals - Part One, unpublished information.

25. Registered Nurses Association of Ontario, April, 1981, p. 6.

26. Haynes, D., 'Hectic Life Buffets High-Tech Nurses', Winnipeg Free Press, June 2, 1987.

27. Statistics Canada, Registered Nurses Management Data, 1986.

28. Employment and Immigration Canada, Labour Market Outlook and Structural Analysis, COPS Databank, data from the National Graduate Survey.

29. Alberta Hospital Association, Nursing Manpower: A Study of Factors in Nursing Supply and Demand in Alberta Hospitals and Nursing Homes, Edmonton, Alberta, November, 1980, Appendix p. 403.

30. Canadian Nurses Association, April, 1982, p. iii.

31. Employment and Immigration Canada, data from the National Graduate Survey.

32. Kettle, J. and Zwelling, M., Skill Development Leave Task Force, Background Paper 26, Policy Reflections on Skills Development Leave, Employment and Immigration Canada, April, 1983, p. 46.

33. Manitoba Nursing Review Committee, Report of the Manitoba Nursing Review Committee to the Minister of Health, April, 1985, p. 11.

34. University of British Columbia, Division of Health Services Research and Development. Nurse Requirements in British Columbia; An Analysis of the 1979-82 Trends. Part I - Methods and Preliminary Findings, Vancouver, British Columbia, September, 1984, p. 28.

35. Labour Canada, Collective Bargaining Review, Ottawa, Ontario, various issues.

36. Manitoba Nursing Review Committee, April, 1985, p. 33.

37. Statistics Canada, Health Care Section, Health Division, Catalogue No. 83-232, 'Hospital Annual Statistics', Ottawa, Ontario.

38. Alberta Hospital Association, November, 1980, p. 17.

39. Boudreau, T.J., Report of the Committee on Nurse Practitioners, presented to the Department of National Health and Welfare, April, 1972.

40. Business Council on National Issues, Social Policy Reform and the National Agenda, Ottawa, Ontario, December, 1986, p. 57.

41. Soderstrom, 1978, p. 89.

42. Canadian Nurses Association, Credentialing in Nursing, Policy Statement and Background Paper, Ottawa, Ontario, September, 1982.

43. Ibid, p. 25.

44. Statistics Canada, Health Care Section, Health Division, Catalogue No. 82-206, 'Hospital Morbidity', Ottawa, Ontario.

45. Employment and Immigration Canada, COPS Databank.

46. Canadian Hospital Association, Hospital Sector Study, [illegible] Canadian Occupational Projection System, Employment and Immigration Canada, Ottawa, Ontario, May 1984, p. 53, see Statistics Canada, A Prognosis for Hospitals - The Effects of Population Change on the Need for Hospital Space, prepared by Lefebvre, L.A., Zsigmond, Z., and Devereaux, M.S., Catalogue No. 85-520E, Occasional, November 1979, p. 43.

47. Woods Gordon Management Consultants, Task Force on the Allocation of Health Care Resources - Investigation of the Impact of Demographic Change on the Health Care System in Canada - Final Report, August, 1984, Appendix I.

48. Canadian Hospital Association, May, 1984, p. 63.

49. Evans, R.G., 'Hang Together, or Hang Separately: The Viability of a Universal Health Care System in an Aging Society', Canadian Public Policy, Vol. 13, No. 2, p. 165.

50. Kelly, C., 'N.B. hospital concept provides low-cost care', The Globe and Mail, September 30, 1985, p. 8.

51. Denton, F., Gafni, A., Spenser, B.G., and Stoddart, G., 'Potential Savings from the Adoption of Nurse Practitioner Technology in the Canadian Health Care System', Socio-Economic Planning Sciences, An International Journal, vol. 17, No. 4, p. 208.

52. Statistics Canada, Health Care Section, Health Division, Catalogue No. 83-232, 'Hospital Annual Statistics', Ottawa, Ontario.

53. New Brunswick Manpower Consultative Committee on Nursing Shortage, Nursing Shortages: Turnover Reduction and Re-Entry of the Non-practicing Nurse. Volume 1 - Summary and Recommendations, July, 1981, p. 2.

54. Statistics Canada, Registered Nurses Management Data, 1986.

55. Statistics Canada, 1981 Census of Canada, COPS Databank.

56. Statistics Canada, Registered Nurses Management Data, 1986.

57. Based on number of registered nurses employed in nursing, Canada and the provinces, Statistics Canada, Registered Nurses Management Data, 1986.

58. Association of Registered Nurses of Newfoundland, July, 1982, p. 70.

59. Based on number of graduates by level of education, Employment and Immigration Canada, COPS Databank, Student Flow Model.

60. Peat, Marwick and Partners, Western Canada Health Manpower Training Study, under direction of the Western Canada Health Manpower Training Study Steering Committee. Section II - Category 4 Reports - Registered Nurses, Psychiatric Nurses, Nursing Assistants, 1981, p. III-2.

61. Advisory Committee on Nursing Manpower (Ontario), Report on Nursing Manpower, April 30, 1987, p. 11.

62. Employment and Immigration Canada, COPS Databank.

63. Statistics Canada, Revised Registered Nurses Data Series.

64. Canadian Nurses Association, Brief to the Commission of Inquiry into Part-time Work, Ottawa, Ontario, December 1982, p. 14.

65. Labour Canada, Part-time work in Canada; A Report of the Commission of Inquiry into Part-time Work, Ottawa, Ontario, 1983, p. 23.

66. Alberta Hospital Association, November, 1980, p. xvi.

67. Ibid, p. xxiv.

68. Peat, Marwick and Partners, 1981, p. III-5.

69. Ibid, p. I-6.

70. Brothers, K., Kazanjian, A., and Wong., E., March, 1985.

71. Ibid, Appendix A.

72. Registered Nurses Association of British Columbia, Nurses: Are we at the Breaking Point?, Vancouver, British Columbia, 1981, p. 19.

73. Employment and Immigration Canada, Labour Market Outlook and Structural Analysis, preliminary estimates based upon the COPS Gross Flows Model.

74. Alberta Hospital Association, 1980, pp. 280-281.

75. Nova Scotia Department of Health, Council of Teaching Hospitals, and Registered Nurses Association of Nova Scotia, Turnover of Staff Nurses in Nova Scotia - Cause and Remedies, 1981, p. iv.

76. Alberta Hospital Association, 1980, p. xxiv.

77. New Brunswick Manpower Consultative Committee on Nursing Shortage, July, 1981, p. 11.

78. Nova Scotia Department of Health, Council of Teaching Hospitals, and Registered Nurses Association of Nova Scotia, 1981, p. 22.

79. Ibid, p. 79.

80. Federal/Provincial Advisory Committee on Health Human Resources, Bursaries and Incentive Programs for Health Personnel in Canada, Health and Welfare Canada, Health Human Resources Division, Ottawa, Ontario, February, 1987.

81. Taylor, C., Occupational Exchanges of Immigrants between Canada and the United States, 1973-1979, Prepared for the 10th World Congress of Sociology, Mexico City, Mexico, August 16-21, 1982, p. 26.

82. Association of Registered Nurses of Newfoundland, July, 1982, p. 81.

83. Employment and Immigration Canada, Occupational Selection Committee, unpublished information.

84. New Brunswick Manpower Consultative Committee on Nursing Shortage, July, 1980, p. 13.

SELECTED BIBLIOGRAPHY

1. Advisory Committee on Nursing Manpower (Ontario), Report on Nursing Manpower, April 30, 1987.

2. Alberta Hospital Association, Nursing Manpower: A Study of Factors in Nursing Supply and Demand in Alberta Hospitals and Nursing Homes, Edmonton, Alberta, November, 1980.

3. Anderson, L., Cowan, C.S., Danaher, A., Fawcett, M., Flynn-McGrath, S., Forchuk, C., Royle, J., and Westwell, J., 'Unmasking the Clinical Nurse Specialist', The Canadian Nurse, November, 1986, pp. 14-17.

4. Association of Registered Nurses of Newfoundland, Nurse Manpower Report, St-John's, Newfoundland, July, 1982.

5. Banning, J., 'NEWS', The Canadian Nurse, August, 1986, pp. 10-13.

6. Betcherman, G., McMullen, K., Working with Technology: A Survey of Automation in Canada, Economic Council of Canada, Ottawa, Ontario, 1986.

7. Boudreau, T.J., Report of the Committee on Nurse Practitioners, presented to the Department of National Health and Welfare, April, 1972.

8. Brody, J.A., Brock, D.B., Williams, T.F., 'Trends in the Health of the Elderly Population', Annual Review of Public Health, 1987, 8, pp.211-234.

9. Brothers, K., Kazanjian, A., and Wong, E., Life Cycle Activity Patterns of Nurses in British Columbia: Forecasting Future Supply and Professional Life Expectancy, University of British Columbia, Division of Health Services Research and Development, Vancouver, British Columbia, March, 1985.

10. Business Council on National Issues, Social Policy Reform and the National Agenda, Ottawa, Ontario, December 1986.

11. Canadian Hospital Association, Exploring the Future of Hospitals in Canada: A Definition Study, Ottawa, Ontario, September, 1984.

12. Canadian Hospital Association, Hospital Sector Study, for Canadian Occupational Projection System, Employment and Immigration Canada, Ottawa, Ontario, May, 1984.

13. Canadian Medical Association, 'News Briefs - Nursing Shortage Worsening in Canada', Canadian Medical Association Journal, Vol. 135, November 15, 1986, p. 1162.

14. Canadian Nurses Association, The Leaf and The Lamp, Ottawa, Ontario, 1968.

15. Canadian Nurses Association, Entry to the Practice of Nursing: A Background Paper, Ottawa, Ontario, April, 1982.

16. Canadian Nurses Association, Credentialing in Nursing, Policy Statement and Background Paper, Ottawa, Ontario, September, 1982.

17. Canadian Nurses Association, Brief to the Commission of Inquiry into Part-time Work, Ottawa, Ontario, December, 1982.

18. Canadian Nurses Association and Statistics Canada, Nursing in Canada, Personnel infirmier au Canada, 1985, Ottawa, Ontario, December, 1986.

19. Canadian Press, 'Nursing Shortage Puzzles Country Health Experts', The Ottawa Citizen, November 29, 1986.

20. Clarke, M. 'Action and reflection: practice and theory in nursing', Journal of Advanced Nursing, 1986, Vol. 11, pp. 3-11.

21. College of Nurses of Ontario, Briefing Paper on Issues Concerning the Registered Nursing Assistant and the Health Care Aide, September, 1987.

22. Denton, F., Gafni, A., Spencer, B.G., and Stoddart, G., 'Potential Savings from the Adoption of Nurse Practitioner Technology in the Canadian Health Care System', Socio-Economic Planning Sciences, An International Journal, Vol. 17, No.4, pp. 199-209.

23. Employment and Immigration Canada, Labour Market Outlook and Structural Analysis, COPS Databank.

24. Employment and Immigration Canada, Occupational and Career Information Branch, background research conducted for the development of the National Occupational Classification, Nursing Occupations, 1987.

25. Employment and Immigration Canada, Labour Market Planning and Adjustment Branch, Manpower Planning (Resources and Services), Registered Nurses in Canada; Selected Employment Issues and Data, Ottawa, Ontario, October, 1981.

26. Employment and Immigration Canada, Occupational Selection Committee, Ottawa/Hull, unpublished information.

27. Employment and Immigration Canada, Strategic Policy and Planning, Labour Market Outlook and Structural Analysis, Determining the Occupational Composition of the Selected Immigrant Worker Category, November, 1986.

28. Epp. J., Minister of National Health & Welfare, Achieving Health for All: A Framework for Health Promotion, 1986

29. Evans, R.G., Strained Mercy: The Economics of Canadian Health Care, Butterworths, Toronto, Ontario, 1984.

30. Federal/Provincial Advisory Committee on Health Human Resources, Bursaries and Incentive Programs for Health Personnel in Canada, Health and Welfare Canada, Health Human Resources Division, Ottawa, Ontario, February, 1987

31. Federal/Provincial Advisory Committee on Health Human Resources, Catalogue on Health Manpower Legislation - 1985 Edition, Health and Welfare Canada, Health Human Resources Division, Ottawa, Ontario, 1985.

32. Flaherty, M.J., Employment for Registered Nurses in Canada, Current Status, Health and Welfare Canada, Ottawa, Ontario, June 17, 1981.

33. The Globe and Mail, 'Hospitals Hire 100 Nurses from Maritime Provinces', December 5, 1986, p. A11.

34. Haynes, D., 'Hectic Life Buffets High-Tech Nurses', Winnipeg Free Press, June 2, 1987.

35. Health and Welfare Canada, Health Information Division, Policy, Planning and Information Branch, Canada Health Manpower Inventory, 1985, Ottawa, Ontario, 1986.

36. Hofoss, D., 'Health Professions: The Origin of Species', Social Science Medicine, Vol. 22., No. 2, 1986, pp. 201-209.

37. Jenny, J.L., Issues Affecting Nurses' Hospital Employment in the '80's, A discussion paper prepared for the Canadian Hospital Association, Ottawa, Ontario, November, 1982.

38. Kelly, C., 'N.B. Hospital Concept Provides Low-Cost Care', The Globe and Mail, September 30, 1985, p. 8.

39. Kettle, J. and Zwelling, M., Skill Development Leave Task Force Background Paper 26, Policy Reflections on Skills Development Leave, Employment and Immigration Canada, April, 1983.

40. Labour Canada, Collective Bargaining Review, various issues, published monthly, Ottawa, Ontario.

41. Labour Canada, Part-time Work in Canada; Report of the Commission of Inquiry into Part-time Work, Ottawa, Ontario, 1983.

42. Lane B., 'Specialization in Nursing: Some Canadian Issues', The Canadian Nurse, June, 1985, pp. 24-25.

43. Leung, B., Education and Regulation of Selected Health Occupations in Canada; Nursing Manpower, Department of National Health and Welfare, Health Manpower Directorate, Health Manpower Report No. 7-74, Ottawa, Ontario, 1974.

44. Lipovenko, D., 'Hospitals Alarmed as Disgruntled Nurses Flee Profession', The Globe and Mail, December 6, 1986, p. A4.

45. Manitoba Nursing Review Committee, Report of the Manitoba Nursing Review Committee to the Minister of Health, April, 1985.

46. New Brunswick Manpower Consultative Committee on Nursing Shortage, Nursing Shortages: Turnover Reduction and Re-entry of the Non-practicing Nurse. Volume 1- Summary and Recommendations, July, 1981.

47. Nova Scotia Department of Health, Council of Teaching Hospitals and Registered Nurses Association of Nova Scotia, Turnover of Staff Nurses in Nova Scotia - Causes and Remedies, 1981.

48. Peat, Marwick and Partners, Western Canada Health Manpower Training Study, under direction of the Western Canada Health Manpower Training Study Steering Committee, Section I- Executive Summaries and Section II - Category 4 Reports - Registered Nurses, Psychiatric Nurses, Nursing Assistants, 1981.

49. Registered Nurses Association of British Columbia, Nurses: Are We at the Breaking Point? Vancouver, British Columbia, 1981.

50. Registered Nurses' Association of Ontario, Brief on the Proliferation of Categories of Health Care Workers, Submitted to the Minister of Health, Toronto, Ontario, February, 1979.

51. Registered Nurses' Association of Ontario, Report of Task Force on Nursing Shortage, Toronto, Ontario, April, 1981.

52. Shaver, J., 'High Touch Nursing in a High Tech World', The Canadian Nurse, May, 1986, pp. 16-19.

53. Soderstrom, L., The Canadian Health System, Croom Helm, London, Great Britain, 1978.

54. Statistics Canada, Health Care Section, Health Division, Catalogue No. 82-206, 'Hospital Morbidity', Ottawa, Ontario.

55. Statistics Canada, Health Care Section, Health Division, Catalogue No. 83-232, 'Hospital Annual Statistics', Ottawa, Ontario.

56. Statistics Canada, Health Care Section, Health Division and Health and Welfare Canada, Health Information Division, Information Systems Directorate, Annual Return of Health Care Facilities, Hospitals, Part One, unpublished information.

57. Statistics Canada, Health Manpower Statistics Section, Health Division, Revised Registered Nurses Data Series (1979 to 1985) and Registered Nurses Management Data (1986), Ottawa, Ontario.

58. Statistics Canada, Health Care Section, Health Division, Catalogue No. 83-226, 'Nursing in Canada', Ottawa, Ontario.

59. Statistics Canada, Household Surveys Division, Catalogue No. 71-001, 'The labour force', Ottawa, Ontario.

60. Taylor, C. Occupational Exchanges of Immigrants between Canada and the United States, 1973-1979, Prepared for the Xth World Congress of Sociology, Mexico City, Mexico, August 16-21, 1982.

61. University of British Columbia, Division of Health Services Research and Development, Nurse Requirements in British Columbia; An Analysis of the 1979-82 Trends. Part I - Methods and Preliminary Findings, Vancouver, British Columbia, September, 1984.

62. Webber, Maryanne, 'Total Annual Hours Worked in Canada: 1976 to 1984', The labour force, Catalogue No. 71-001, Statistics Canada, March, 1985, pp. 85-102.

63. Wilson, J. 'Midwifery moves one step closer to legalization', The Canadian Nurse, April, 1986, p. 14.

64. Woods Gordon Management Consultants, Task Force on the Allocation of Health Care Resources - Investigation of the Impact of Demographic Change on the Health Care System in Canada - Final Report, August, 1984.

APPENDIX I

APPENDIX I

Projection Methodology Briefs

Demand (Table 3.2, Columns 1 through 4)

The demand side of the Canadian Occupational Projection System (COPS) projects employment on an occupational basis. Under the current system this is done in two phases.

The first phase is the development of macroeconomic projections for the Canadian and Provincial economies. These projections are produced based on consultation between COPS and the regional offices of Employment and Immigration Canada, some provincial government departments and private businesses. A reference case is developed as a working assumption regarding the path the economy could follow (a number of impact cases are developed from this to cover the major areas of risk). These projections are produced by Informetrica Limited for COPS using the Informetrica Model and the Regional Industrial Model. The assumptions and results are the responsibility of COPS. Employment estimates are generated for 62 industrial sectors at the national and provincial levels.

The industrial sectors of major importance for nurse employment are Hospitals and Other Health Care Services. Major input variables for these industry categories include the age and sex of the population, age and sex related measures of medical expenditure, wages and salaries, discretionary consumer income, federal and provincial capital consumption allowances, hospital depreciation, and the real domestic product (in $1971 dollars) of the Health Care Sector as a whole.

The second phase in the projection process consists of turning the 62 industry employment projections into 512 occupations. This transformation is based upon occupation by industry of employment distributions from the 1981 Census of Canada. Occupation specific information is derived by breaking down industry by province totals on the basis of occupational distributions from the 1981 Census of Canada.

This procedure is performed for each year of the forecast period, assuming no change in the census proportions. This is usually referred to as a 'fixed coefficient model'. The use of a projected coefficient model is currently being explored.

Entrants and Re - Entrants from the Household Sector
(Table 3.2, Column 5)

The methodology employed in deriving this projection series is at the developmental stage, although few changes are anticipated to the current structural format of the model. Detailed COPS population projections form the base of analysis, from which are extracted annual estimates of the working age population by age, sex and region. Labour force and unemployment rate projections (supplied by Informetrica Limited), combined with probabilities of transition from non-labour force to the labour force and the shares of householders in this flow (historical rates for these last two variables are calculated from the Statistics Canada Annual Work Patterns Survey data) are then used to produce estimates of total entrants to the labour force from the household sector. Occupation specific information is derived by breaking down this total on the basis of occupational distributions from the 1981 Census of Canada.

Entrants from the Formal Education System (Table 3.2, Column 6)

The projections of occupational entrants from the formal education system are taken from the COPS Student Flow Model. These are derived by distributing the number of graduates from full-time programs of post-secondary study (by level and major field of study) amongst occupations according to a fixed percentage, derived from the 1984 National Graduate Survey of 1982 post-secondary graduates. Projections of graduate numbers are derived on the basis of demographic projections, and assumed level specific enrolment, drop-out and graduation rates.

Graduate totals by level are then disaggregated to major field of study (according to the proportions in the most current data), at which time certain adjustments (for those leaving the country, those who were part-time students, those not continuing in school etc.) are made.

APPENDIX II

Table A1

REGISTERED NURSES EMPLOYED IN NURSING[1] AS A PERCENT OF ALL REGISTERED NURSES, BY PROVINCE OF EMPLOYMENT/REGISTRATION, CANADA[2] AND THE PROVINCES, 1979 TO 1986

Province	1979	1980	1981	1982	1983	1984	1985	1986
Newfoundland	98.2	97.9	98.2	N/A[3]	N/A[3]	N/A[3,4]	89.3	92.5
Prince Edward Island	91.9	91.0	94.8	96.8	98.7	96.4	99.6	98.8
Nova Scotia	95.2	94.8	94.1	94.4	93.1	99.5	94.3	94.7
New Brunswick	82.3	82.4	88.9	91.3	94.1	95.2	92.7	93.5
Quebec	89.1	86.9	87.6	91.8	91.6	92.0	92.2	92.2
Ontario	77.2	76.9	83.5	68.7	81.2	81.5	84.5	84.1
Manitoba	86.9	88.2	99.0	99.4	99.4	99.6	99.5	97.3
Saskatchewan	93.6	94.8	92.5	96.2	96.8	95.8	96.4	96.3
Alberta	88.4	89.9	88.4	89.9	92.0	92.6	91.2	91.6
British Columbia	81.5	80.5	91.0	85.3	85.2	87.7	87.4	87.5
Northwest Territories	86.1	86.7	89.1	95.2	90.0	91.5	95.0	98.7
Canada[2]	83.5	83.0	87.2	82.6	87.5	88.0[4]	89.1	89.0

Note: These percentages are based on self-reported information provided to Statistics Canada by provincial nursing associations, as collected by these bodies from individual nurses during the first four months of the annual registration process. Total coverage cannot be claimed since not all provinces have mandatory registration legislation.

1. Includes direct patient care, administration, education and research.

2. Excludes the Yukon.

3. The comparison is not appropriate. Information provided for these years by the Association of Registered Nurses of Newfoundland was limited in coverage to employed nursing personnel.

4. Data from the Association of Registered Nurses of Newfoundland were not available in 1984. The 1983 data were repeated in 1984 for Newfoundland and within the Canada total.

Source: Statistics Canada, Health Division, Health Manpower Statistics Section, Revised Registered Nurses Data Series (1979 to 1985) and Registered Nurses Management Data (1986), Ottawa, Ontario.

Table A2

REGISTERED NURSES EMPLOYED IN NURSING BY PLACE OF EMPLOYMENT, CANADA[1], 1979 TO 1986

Year	Total	Hospital	Nursing Home/ Home for the Aged	Community Health	Physician's Office	Educational Institution	Other	Not Stated
1979	148,827	109,893	8,529	13,442	4,094	4,628	4,807	3,434
1980	155,178	114,230	9,667	13,739	4,346	4,646	5,168	3,382
1981	161,070	118,494	9,608	14,838	4,260	4,650	5,451	3,769
1982	164,086	120,618	8,267	15,142	4,162	4,632	5,738	5,527
1983	176,623	130,375	11,019	16,325	4,477	4,912	5,998	3,517
1984[2]	187,918	137,055	12,167	17,259	4,823	5,113	5,935	5,566
1985	194,361	143,473	12,869	18,157	5,143	5,333	7,129	2,257
1986	204,579	150,261	13,975	19,384	5,330	5,395	7,373	2,861

Note: These data are based on self-reported information provided to Statistics Canada by provincial nursing associations, as collected by these bodies from individual nurses during the first four months of the annual registration process. Total coverage cannot be claimed since not all provinces have mandatory registration legislation.

1. Excludes the Yukon.

2. Data from the Association of Registered Nurses of Newfoundland were not available in 1984. The 1983 data were repeated to calculate the 1984 Canada total.

Source: Statistics Canada, Health Division, Health Manpower Statistics Section, Revised Registered Nurses Data Series (1979 to 1985) and Registered Nurses Management Data (1986), Ottawa, Ontario.

Table A3

REGISTERED NURSES EMPLOYED IN NURSING
BY PLACE OF EMPLOYMENT[1], CANADA[2] AND THE PROVINCES, 1986

Province	Total	Hospital	Nursing Home/ Home for The Aged	Community Health	Physician's Office	Educational Institution	Other	Not Stated
Newfoundland	4,474	3,396	473	320	26	105	142	12
Prince Edward Island	978	613	132	58	31	30	84	30
Nova Scotia	8,131	6,452	668	440	143	175	241	12
New Brunswick	6,211	4,615	647	364	152	153	139	141
Quebec	51,855	38,552	3,287	5,095	649	1,300	1,226	1,746
Ontario	75,594	53,467	5,354	8,248	3,002	2,084	3,053	386
Manitoba	8,725	6,332	726	574	95	251	638	59
Saskatchewan	8,333	6,094	762	817	189	239	188	44
Alberta	18,644	14,280	622	1,551	603	567	898	123
British Columbia	21,404	16,264	1,303	1,893	432	489	719	304
Northwest Territories	230	146	1	24	8	2	45	4
Canada[2]	204,579	150,261	13,975	19,384	5,330	5,395	7,373	2,861

Note: These data are based on self-reported information provided to Statistics Canada by provincial nursing associations, as collected by these bodies from individual nurses during the first four months of the annual registration process. Total coverage cannot be claimed since not all provinces have mandatory registration legislation.

1. Minor inter-provincial differences do exist in place of employment categorizations.

2. Excludes the Yukon.

Source: Statistics Canada, Health Divison, Health Manpower Statistics Section, Registered Nurses Management Data, Ottawa, Ontario, 1986.

Table A4

REGISTERED NURSES EMPLOYED IN NURSING[1]
BY POSITION OF EMPLOYMENT, CANADA, 1979 TO 1986

Year	Total	Director Assistant Director	Supervisor/ Coordinator, Assistant Supervisor/ Coordinator	Clinical Specialist	Head Nurse	General Duty/Staff	Instructor	Other	Not Stated
1979	148,827	3,638	7,348	2,612	16,083	98,119	4,265	9,397	7,365
1980	155,178	3,792	7,672	2,676	16,263	103,179	4,360	9,881	7,355
1981	161,070	3,704	7,936	1,971	16,503	104,986	4,164	7,909	13,897
1982	164,086	3,851	8,365	1,517	16,419	112,666	4,576	8,845	7,847
1983	176,623	4,396	9,033	1,367	17,174	123,889	4,843	8,331	7,600
1984[2]	187,918	4,661	9,515	1,157	15,249	132,127	5,019	11,041	9,149
1985	194,361	4,703	10,051	1,200	16,665	137,991	5,186	12,670	5,895
1986	204,579	4,764	10,374	1,181	15,964	146,842	5,274	13,396	6,784

Note: These data are based on self-reported information provided to Statistics Canada by provincial nursing associations, as collected by these bodies from individual nurses during the first four months of the annual registration process. Total coverage cannot be claimed since not all provinces have mandatory registration legislation.

1. Excludes the Yukon.
2. Data from the Association of Registered Nurses of Newfoundland were not available in 1984. The 1983 data were repeated to calculate the 1984 Canada total.

Source: Statistics Canada, Health Division, Health Manpower Statistics Section, Revised Registered Nurses Data Series (1979 to 1985) and Registered Nurses Management Data (1986), Ottawa, Ontario.

Table A5

REGISTERED NURSES EMPLOYED IN NURSING
BY POSITION OF EMPLOYMENT, CANADA[1] AND THE PROVINCES, 1986

Province	Total	Supervisor/ Coordinator, Assistant Assistant Director	Supervisor/ Coordinator	Clinical Specialist	Head Nurse	General Duty/Staff	Instructor	Other	Not Stated
Newfoundland	4,474	131	307	8	89	3,290	165	471	13
Prince Edward Island	978	34	108	2	56	627	27	69	55
Nova Scotia	8,131	191	667	36	490	6,262	198	237	50
New Brunswick	6,211	178	237	21	325	4,668	155	247	380
Quebec	51,855	1,018	2,146	337	8,041	34,940	1,238	1,654	2,481
Ontario	75,594	1,754	4,284	470	4,069	54,751	1,911	6,175	2,481
Manitoba	8,725	231	618	36	636	6,272	306	529	97
Saskatchewan	8,333	343	346	18	262	6,327	192	477	368
Alberta	18,644	415	1,000	101	564	14,523	572	1,208	261
British Columbia	21,404	460	642	152	1,405	15,046	509	2,306	884
Northwest Territories	230	9	19	0	27	136	1	23	15
Canada[1]	204,579	4,764	10,374	1,181	15,964	146,842	5,274	13,396	6,784

Note: These data are based on self-reported information provided to Statistics Canada by provincial nursing associations, as collected by these bodies from individual nurses during the first four months of the annual registration process. Total coverage cannot be claimed since not all provinces have mandatory registration legislation.

1. Excludes the Yukon.

Source: Statistics Canada, Health Divison, Health Manpower Statistics Section, Registered Nurses Management Data, Ottawa, Ontario, 1986.

Table A6

REGISTERED NURSES, CANADA AND PROVINCE OF REGISTRATION/EMPLOYMENT[1], 1979 TO 1986

Province	1979	1980	1981	1982	1983	1984	1985	1986
Newfoundland	3,138	3,127	3,507	4,207	3,868	3,868[4]	4,326	4,836
Prince Edward Island	852	828	886	889	885	963	980	1,113
Nova Scotia	5,581	6,199	6,722	7,368	7,519	7,966	8,305	8,596
New Brunswick	5,090	5,339	5,358	5,733	6,127	6,375	6,115	6,874
Quebec[2]	44,773	51,048	51,582	52,437	50,841	51,787	55,288	56,758
Ontario[2,3]	83,943	85,171	85,914	87,092	89,725	89,723	91,505	94,118
Manitoba[2,3]	7,667	7,844	7,639	8,035	8,340	8,675	8,800	9,232
Saskatchewan[2,3]	6,837	6,854	7,594	7,545	7,693	8,289	8,347	8,704
Alberta[3]	15,204	16,194	17,120	17,953	19,280	20,582	20,714	21,453
British Columbia[2,3]	19,530	20,865	19,459	23,322	23,666	24,304	24,803	25,042
Northwest Territories	178	185	204	195	196	217	262	267
Yukon	172	195	199	213	204	211	205	188
Canada	192,919	203,849	206,184	214,989	218,344	222,960[4]	229,650	237,181

1. These data are tabulated on the basis of information provided to Statistics Canada by provincial nursing registries, as given to them by individual nurses during the first four months of the annual registration process. In most provinces, nurses are required by Statute to register with the appropriate licensing body to attain the right of employment in the profession. Nurses may register in more than one province, although most interprovincial duplicates have been removed. Since there is no licensing authority in the Yukon, data for this jurisdiction apply to nurses registered elsewhere, but employed or residing within the territory.

2. These provinces do not require registration as a pre-condition for nursing employment. Registration in these provinces, signifies a state endorsement of competence, but grants no exclusive right to practice.

3. These provinces have separate legislation and a distinct registration authority for psychiatric nurses. Whereas these nurses are included among registrants in most provinces, they are excluded here (although individuals may hold dual registration).

4. Data from the Association of Registered Nurses of Newfoundland were not available in 1984. The 1983 data were therefore repeated in 1984 for Newfoundland and within the Canada total.

Source: Statistics Canada, Health Division, Health Manpower Statistics Section, Revised Registered Nurses Data Series (1979 to 1985) and Registered Nurses Mangement Data (1986), Ottawa, Ontario.

Table A7

GRADUATIONS FROM DIPLOMA SCHOOLS OF NURSING, BY TYPE OF PROGRAM, CANADA, 1975 TO 1986

Year	Total	Community College	Hospital/ Independent
1975	8,433	6,488	1,945
1976	9,042	6,910	2,132
1977	8,611	6,518	2,093
1978	7,403	5,600	1,803
1979	6,680	5,173	1,507
1980	6,685	5,199	1,486
1981	6,478	4,970	1,508
1982	6,621	4,922	1,699
1983	6,761	5,023	1,738
1984	6,871	5,069	1,802
1985	7,218	5,488	1,730
1986	6,762	5,063	1,699

Source: Statistics Canada, Health Care Section, Health Division, Catalogue No. 83-226, 'Nursing in Canada', Ottawa, Ontario.

Table A8

GRADUATIONS FROM UNIVERSITY SCHOOLS OF NURSING, BY TYPE OF PROGRAM, CANADA, 1975 TO 1986

Year	Total	Post R.N. Diploma/ Certificate[1]	Basic Baccalaureate	Post R.N. Baccalaureate[2]	Master's
1975	1,833	467	845	471	50
1976	1,703	256	954	428	65
1977	2,317	787	977	487	66
1978	2,378	846	1,019	436	77
1979	2,106	690	900	430	86
1980	2,364	801	954	499	110
1981	2,488	957	918	407	106
1982	2,718	1,004	1,023	567	124
1983	2,874	1,076	1,062	624	112
1984	2,385	558	1,092	637	98
1985	2,680	593	1,196	761	130
1986	2,849	657	1,249	788	155

1. Programs of specialized instruction, open to nurses who have already graduated from basic nurse training, through either of a diploma or university program.

2. Baccalaureate training undertaken at a later stage by qualified nurses who received their original nurse training at the diploma level.

Source: Statistics Canada, Health Care Section, Health Division, Catalogue No. 83-226, 'Nursing in Canada', Ottawa, Ontario.

Table A9

GRADUATIONS FROM BASIC PROGRAMS OF NURSING INSTRUCTION, BY TYPE OF PROGRAM, CANADA AND THE PROVINCES, 1986

Province	Total	Diploma		Baccalaureate	
	#	#	%	#	%
Newfoundland	289	229	79.2	60	20.8
Prince Edward Island	45	45	100.0	--	--
Nova Scotia	430	343	79.8	87	20.2
New Brunswick	310	242	78.1	68	21.9
Quebec	1,558	1,414	90.8	144	9.2
Ontario	2,977	2,419	81.3	558	18.7
Manitoba	518	446	86.1	72	13.9
Saskatchewan	374	314	84.0	60	16.0
Alberta	812	700	86.2	112	13.8
British Columbia	698	610	87.4	88	12.6
Canada	8,011	6,762	84.4	1,249	15.6

-- Not Applicable.

Source: Statistics Canada, Health Care Section, Health Division, Catalogue No. 83-226, 'Nursing in Canada', Ottawa, Ontario.

Table A10

REGISTERED NURSES BY HIGHEST LEVEL OF EDUCATION IN NURSING AND PERCENT DISTRIBUTION[1] BY HIGHEST LEVEL OF EDUCATION IN NURSING, CANADA[2], 1979 TO 1986

	Numeric Distribution						Percent Distribution[1]			
Year	Total	Registered Nurse Diploma	Post-Basic Diploma/ Certificate	Bacca-laureate Degree	Masters or Higher	Not Stated	Registered Nurse Diploma	Post-Basic Diploma/ Certificate	Bacca-laureate Degree	Masters or Higher
1979	192,747	126,198	43,460	17,064	1,165	4,860	67.2	23.1	9.1	0.6
1980	203,654	132,272	41,735	18,086	1,246	10,315	68.4	21.6	9.4	0.6
1981	205,985	138,992	38,458	12,242	920	8,373	70.3	19.5	9.7	0.5
1982	214,776	145,140	39,785	21,328	1,041	7,482	70.0	19.2	10.3	0.5
1983	218,140	151,191	41,469	22,921	2,297	262	69.4	19.0	10.5	1.1
1984[3]	222,749	154,225	41,917	24,138	2,169	271	69.3	18.8	10.8	1.0
1985	229,445	159,175	42,199	25,752	2,173	226	69.4	18.4	11.2	0.9
1986	236,993	164,602	42,635	27,635	2,121	-	69.5	18.0	11.7	0.9

Note: These data are based on self-reported information provided to Statistics Canada by provincial nursing associations, as collected by these bodies from individual nurses during the first four months of the annual registration process. Total coverage cannot be claimed since not all provinces have mandatory registration legislation.

1. These distributions are based only upon the information provided by survey respondents who specifically identified their highest level of education in nursing. Persons who did not answer this question have been excluded from the total used in calculation.

2. Excluding the Yukon.

3. Data from the Association of Registered Nurses of Newfoundland were not available in 1984. The 1983 data were repeated to calculate the 1984 Canada total.

Source: Statistics Canada, Health Division, Health Manpower Statistics Section, Revised Registered Nurses Data Series (1979 to 1985) and Registered Nurses Management Data (1986), Ottawa, Ontario.

Table A11

PERCENT OF REGISTERED NURSES WHO HAVE REMAINED (EMPLOYED OR RESIDENT) IN PROVINCE OF GRADUATION, BY PROVINCE OF GRADUATION, 1979 TO 1986

Province	1979	1980	1981	1982	1983	1984	1985	1986
Newfoundland	72.4	70.4	71.4	74.7	72.3	70.8	73.9	75.0
Prince Edward Island	54.2	52.9	54.4	49.6	51	54.2	54.4	56.3
Nova Scotia	64.0	65.4	66.9	68.2	6	69.5	70.8	71.0
New Brunswick	63.3	63.5	62.7	63.7	65.1	66.8	66.0	68.6
Quebec	89.2	90.0	90.6	90.3	89.4	89.6	90.3	90.8
Ontario	91.4	90.6	90.4	90.0	89.8	89.8	90.4	90.8
Manitoba	63.8	62.8	62.8	62.9	63.0	63.7	65.0	66.3
Saskatchewan	57.6	56.2	60.1	58.9	58.7	60.4	61.8	63.6
Alberta	75.2	74.7	76.4	75.6	76.2	77.1	74.8	72.7
British Columbia	88.5	88.3	87.6	88.9	88.8	88.8	89.4	89.6
Northwest Territories[2]	--	--	--	--	--	--	--	--

Note: These percentages are based on self-reported information provided to Statistics Canada by provincial nursing associations, as collected by these bodies from individual nurses during the first four months of the annual registration process. Total coverage cannot be claimed since not all provinces have mandatory registration legislation.

1. Data from the Association of Registered Nurses of Newfoundland were not available in 1984. The 1983 data were repeated for 1984.

2. There are no nurse training facilities in the Northwest Territories.

Source: Statistics Canada, Health Division, Health Manpower Statistics Section, Revised Registered Nurses Data Series (1979 to 1985) and Registered Nurses Management Data (1986), Ottawa, Ontario.

Table A12

NET INTER-PROVINCIAL MOVEMENT OF REGISTERED NURSES - THE DIFFERENCE BETWEEN THE NUMBER OF CURRENTLY REGISTERED CANADIAN NURSES WHO RECEIVED THEIR BASIC NURSING INSTRUCTION IN THE REFERENCE PROVINCE, AND THE NUMBER ACTUALLY EMPLOYED/RESIDENT IN THAT SAME PROVINCE[1], 1979 TO 1986

Province	1979	1980	1981	1982	1983	1984[2]	1985	1986
Newfoundland	-562	-640	-720	-739	-862	-952	-1,103	-1,088
Prince Edward Island	-326	-343	-348	-375	-349	-354	-368	-342
Nova Scotia	-1,338	-1,270	-1,210	-1,159	-1,293	-1,262	-1,182	-1,182
New Brunswick	-1,429	-1,563	-1,640	-1,643	-1,522	-1,485	-1,538	-1,504
Quebec	-2,394	-2,260	-2,363	-2,698	-3,224	-3,315	-3,205	-3,270
Ontario	+2,314	+1,841	+1,281	+1,054	+970	+937	+1,463	+1,945
Manitoba	-1,965	-2,136	-2,151	-2,222	-2,294	-2,376	-2,320	-2,219
Saskatchewan	-2,327	-2,561	-2,217	-2,454	-2,560	-2,512	-2,355	-2,204
Alberta	+1,748	+2,072	+2,878	+3,148	+3,540	+3,740	+2,852	+2,190
British Columbia	+6,134	+6,707	+6,324	+6,929	+7,427	+7,402	+7,538	+7,456
Northwest Territories	+145	+153	+166	+160	+169	+180	+220	+218

Note: These data are based on self-reported information provided to Statistics Canada by provincial nursing associations, as collected by these bodies from individual nurses during the first four months of the annual registration process. Total coverage cannot be claimed since not all provinces have mandatory registration legislation.

1. The data presented above provide net cumulative interprovincial flows of registered nursing personnel. Where net flows exceed zero, this can be interpreted as indicating that the province in question trained fewer Canadian registered nurses than were employed/resident within its boundaries. Therefore, this province has experienced a net in-flow of trained nurses. The inverse is true where a number less than zero is provided.

2. Data from the Association of Registered Nurses of Newfoundland were not available in 1984. The 1983 data were repeated for 1984.

Source: Statistics Canada, Health Division, Health Manpower Statistics Section, Revised Registered Nurses Data Series (1979 to 1985) and Registered Nurses Management Data (1986), Ottawa, Ontario.